F1-151

SONOMA STATE UNIVERSITY

1801 East Cotati Avenue
Rohnert Park, California 94928-3609

Department of Environmental Studies and Planning
707 664-2306

July 21, 1997

CALFED Bay-Delta Program
1416 Ninth Street, Suite 1155
Sacramento, CA 958145

Dear Gentlepersons:

The Department of Environmental Studies and Planning welcomes the opportunity to participate as a partner with the City of Petaluma in their restoration efforts on Adobe Creek. A small team of six to ten students could be directed to data collection under the rubric of the class, ENSP 495 Special Studies in the first semester after funding. In the fall semester of 1998, the work could be incorporated into the ENSP 323 Environmental Restoration Class as a service learning project of the University.

We have great confidence in Jennifer Barrett, Senior Planner with the City of Petaluma. Jennifer is one of our most successful ENSP graduates and she could work effectively with the faculty who know her well and with our students, whose outlook she appreciates. Moreover, Adobe Creek is reasonably close to our campus to make this project practical.

We hope that you will support the City of Petaluma as a CALFED partner as we do.

Sincerely,

Steven C. Orlick, Ph.D.
Professor and Department Chair

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I-003351

F1 - 151

City of Petaluma
Planning Department
P.O. Box 61
Petaluma, CA 94953

PHONE: 707 778 4301
FAX: 707 778-4498

DATE: July 28th, 1997

TRANSMITTAL

TO: **CALFED Bay-Delta Program office**
1416 Ninth Street, Suite 1155
Sacramento, CA 95814

FROM: Jennifer Barrett, Senior Planner

The following items are being sent to you, in response to your request for proposals:

(1) Petaluma Marsh Restoration
(2) Petaluma River Greenway
(3) Adobe Creek Pilot Project- Watershed Science and Habitat Management Program

F1-151

Petaluma River Council
P.O. Box 750501
Petaluma, CA 94975
(707) 763-9336

July 21, 1997

CALFED Bay-Delta Program
1416 Ninth St., Suite 1155
Sacramento, CA 95814

Dear CALFED:

The City of Petaluma has embarked upon an ambitious program aimed at restoring and replacing lost and damaged riparian and wetlands habitat along the Petaluma River and tributaries.

While the River still produces some of the worst inflow water quality to the San Pablo/ San Francisco Bay system, it also contains areas for valuable improvements. The grant requests will help implementation of Petaluma Marsh Restoration acquisitions, Petaluma River Greenway easement acquisitions, and upper Adobe Creek management programs. These programs will have distinct beneficial results for a variety of habitats, fisheries, recreation, wastewater reuse, and the local economy.

The Petaluma River Council, a watershed-based citizens' advocacy group for the last 7 years, strongly recommends CALFED's support for these projects. These funds will go far towards restoration of the Petaluma watershed.

If you have any questions, please feel free to contact me, at (707) 763-9336. Thank you for your consideration.

Sincerely,

David Keller
Director

F1-157

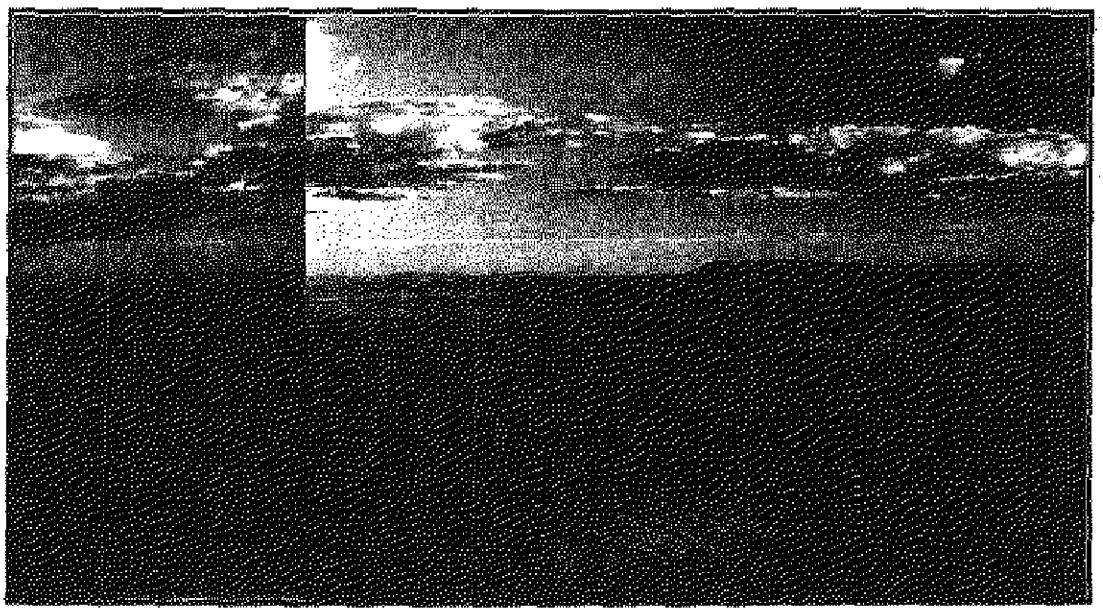
City of Petaluma

CALFED PROPOSAL

MODEL WATERSHED
RESTORATION AND HABITAT MANAGMENT PROGRAM

ADOBE CREEK PILOT PROJECT

WATERSHED SCIENCE
AND
HABITAT MANAGEMENT PROGRAM



PETALUMA WATERSHED
MODEL RESTORATION AND MANAGEMENT PROGRAM
SUMMARY OF REQUESTED GRANT PROPOSALS

PROPOSAL TITLE AND ELEMENTS	REQUESTED CALFED PARTICIPATION FY 97-98	FY 98-99	FY 99-00	CALFED TOTAL	LOCAL MATCH
Petaluma Marsh Restoration					
Demonstration Wetlands	$ 350,000	$ -	$ -	$ 350,000	$ 4,217,680
Alman Marsh Enhancements		7,400	25,200	32,600	125,532
McNear Peninsula Tidal Marsh Restoration			396,000	396,000	299,600
Total	$ 350,000	$ 7,400	# $ 421,200	$ 778,600	4,642,812
Petaluma River Greenway					
Upper Willow Brook Reach	$ -	$ -	$ -	$ -	$ 437,500
Lower Willow Brook	74,998			74,998 [1]	600,000
Denman Reach	127,400			127,400	
Corona Reach		241,860	241,860	483,720 [1]	4,050,000
Denman Flats Retention Areas		515,500		515,500 [1]	515,500
Total	$ 202,398	$ 757,360	$ 241,860	$ 1,201,618	$ 5,603,000
Adobe Creek Pilot Project					
Monitoring and Habitat Management Program	$ 529,600	$ -	$ -	$ 529,600	$ 1,807,280 [3]
Watershed Science Project		127,800		127,800	22,560
Upper Watershed Improvements		20,713	313,654	334,367	109,581
Total	$ 529,600	$ 148,513	$ 313,654	$ 991,767	$ 1,739,421
TOTAL FUNDING REQUEST	$ 1,081,998	$ 913,273	$ 976,714	$ 2,971,985	$ 11,985,233

1. Proposed Block Grant for Site Acquisition
2. Proposed Endowment
3. Annual Budget/Equivalent Endowment

The City of Petaluma is submitting three separate proposals that collectively would comprise a Model Restoration and Habitat Management Program for CALFED. The City's proposals are structured to provide CALFED with great flexibility to fund any single proposal, phase or component thereof. The proposals are well-integrated and provide a comprehensive approach to maximize benefits to the endangered fish by addressing stressors and habitat needs throughout the habitat range: (1) The Petaluma Marsh Restoration project addresses stressors in the lower marsh by increasing and connecting the tidal prism to improve rearing habitat and increase the food supply; (2) the Petaluma River Greenway addresses upstream riparian zones by preserving the hydrologic functions of the floodplain, improving water quality and freshwater aquatic habitat; and, (3) the Adobe Creek Pilot Project addresses issues in the upper watershed by maintaining freshwater attraction flows, controlling erosion to protect spawning habitat, and providing a mechanism for a long-term Monitoring and Habitat Management Program for the Petaluma River Watershed.

SECTION I
EXECUTIVE SUMMARY

"A vision without a task is but a dream,
A task without a vision is drudgery,
A vision and a task is the hope of the world."

quote from a church in Sussex England
Circa 1730

I. EXECUTIVE SUMMARY

The City of Petaluma is pleased to submit this proposal for the ***Adobe Creek Pilot Project - Watershed Science and Habitat Management Program.*** This proposal is one of three separate proposals submitted by the City of Petaluma and a fourth Inquiry Submittal submitted by the local Resource Conservation District, that collectively would comprise a Model Watershed Restoration and Management Program for CALFED. The focus of this proposal is on developing a comprehensive approach to monitoring of restoration projects and, more importantly, developing long-term habitat management programs that provide for continued stewardship of the watershed in perpetuity. The objective for the Model Restoration and Habitat Management Program is to provide a framework for complete restoration of the Petaluma River Watershed.

Adobe Creek is proposed as the pilot project for numerous reasons: (1) restoration improvements within nearly all of the lower watershed areas has been completed or is anticipated by 1998; (2) the lower watershed and headwaters of Adobe Creek are owned by the City and provide a unique opportunity for watershed science that is accessible to the public; (3) Adobe Creek supports native populations of steelhead and chinook salmon and has a new state-of-the-art hatchery operated by the United Anglers; (4) Adobe Creek is steeped in California history, providing a prime example of the many stressors that have affected water supply, water quality and ecosystem degradation as well as, a model of successful restoration; and, (5) there is broad based community support for the restoration of Adobe Creek, educational programs are in place, and adequate local resources are readily available to implement the Habitat Management Program.

The City of Petaluma is seeking matching grant funds from CALFED in the amount of $529,600 to begin an endowment for the long-term Monitoring and Habitat Management Program for the Petaluma River Watershed. This endowment will be used to fund the pilot program on Adobe Creek in conjunction with the Adobe Creek Restoration Demonstration Project. The endowment fund will provide a long-term source of revenue for comprehensive monitoring, management and maintenance of the Adobe Creek Watershed. The Habitat Management Program will be tied to the Educational Program and Regional Monitoring Program through a Watershed Science Project. The pilot project will provide a model program of long-term stewardship and habitat management for other communities in the Bay-Delta system. The City will seek other contributions to build this endowment fund to a goal of $2 million and provide a roll-out program for other tributaries and restoration efforts that will eventually encompass the lower Petaluma River Watershed. A companion Inquiry Submittal from the Southern Sonoma County Resource Conservation District will provide a similar Habitat Management Program for the upper watershed. The proposed endowments would empower the City and the RCD to implement a comprehensive Habitat Management Program that would provide for ecosystem restoration of the entire Petaluma River Watershed over a 10 to 20 year period. The endowment is of critical importance to the success of the local restoration effort to provide an ongoing source of funds for monitoring and management activities. The endowment earnings will be matched by the operating budgets from the City of Petaluma and the Sonoma County Water Agency as well as, by in-kind services of local volunteers.

Additional grant funds in the amount of $148,500 are requested in FY 98-99 to provide equipment, training, mapping and professional services to set up the Watershed Science Program and for design services to evaluate removal of the upper watershed diversion structure and related erosion problems at the headwaters. In FY 99-00, an additional $314,000 is requested to complete restoration activities in the upper watershed of Adobe Creek including removal of the upper diversion structure, installation of

smaller drop structures, erosion control measures and fencing of the entire 5 mile riparian corridor to complete the restoration of the Adobe Creek upper watershed.

The ***Adobe Creek Pilot Project*** will have a synergistic effect with other local restoration efforts that are underway and proposed for additional funding assistance from CALFED in the ***Petaluma Marsh*** and upper reaches of the ***Petaluma River*** as illustrated in Figures I-1 through I-4. If fully funded by CALFED, the three proposals from the City and the fourth Inquiry Submittal from the RCD will empower the local agencies to complete all restoration activities within the Petaluma River Watershed, providing an excellent model for other restoration efforts throughout the Bay-Delta system. This approach integrates scientific research, education, and broad based local participation with a well-coordinated interagency team, supported by qualified technical professionals that will ensure success of the program. The Petaluma River Watershed provides an outstanding opportunity to develop a completely restored model watershed for the following reasons:

Vision - The proposals are based upon the community's shared vision for restoration of the Petaluma River Watershed. The City of Petaluma has completed comprehensive plans for restoration of the watershed (funded by the Coastal Conservancy and Dept. of Water Resources) through the completion of the *Petaluma Marsh Enhancement Plan (1992), the Adobe Creek Restoration Plan and Management Program (1995); the Restoration Design and Management Guidelines for the Petaluma River Watershed (1995)*, and the *Petaluma River Access and Enhancement Plan (1996)*. Planning for the upper watershed is underway through a 205j planning grant from the EPA.

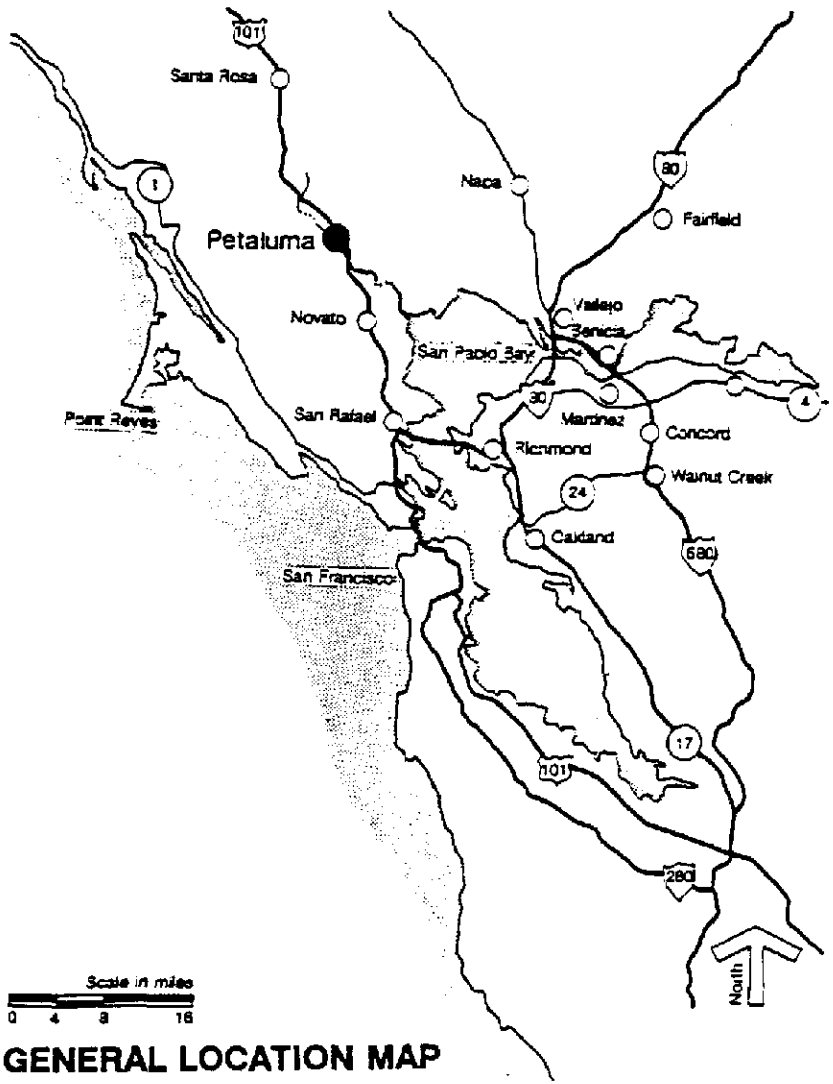
Synergy - The proposals are comprehensive and well-integrated, providing a framework for complete restoration of the Petaluma River Watershed. The proposals are structured to maximize benefits to endangered fish by addressing stressors throughout the habitat range in the lower marsh (food supply and nursery habitat), riparian zones (water quality and aquatic habitat) and watershed (attraction flows/erosion control and spawning habitat).

Ready to Build - The proposed projects are ready to build, providing for early implementation and "in-the-ground" restoration that directly benefits the targeted species. Environmental review has been completed or is nearly completed for the three proposals. The City has assembled all of the resources needed to implement the program with some funding assistance from CALFED.

Highly Leveraged - The proposals are highly leveraged with extensive local participation and funding resources. The City of Petaluma, partner agencies and private contributors have invested over $11.6 million in restoration activities in the Petaluma River Watershed (refer to Table V-1). Over $11.9 million in local resources are committed as matching funds for the three proposals submitted by the City. Total requested CALFED participation in the three proposals is $2.9 million over a 3 year period.

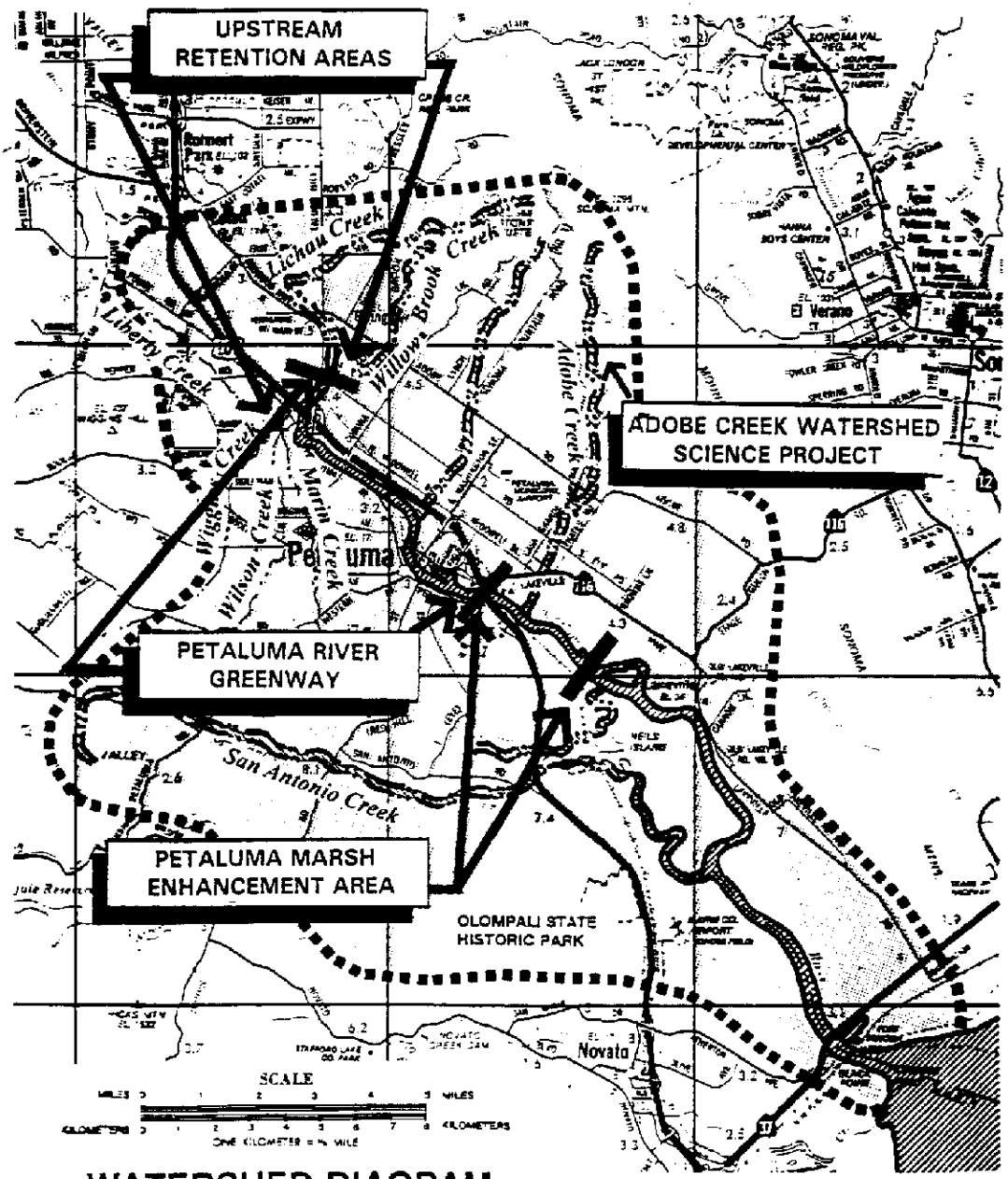
Sustainable - The proposed projects empower the local community to engage in more sustainable resource management practices that address critical issues of water supply and water quality in the context of ecosystem restoration. The proposals are integral to the City's larger planning efforts in water supply and wastewater management to provide recycled water for urban irrigation, thus reducing the demand on potable water supplies, and providing a more sustainable system of water use.

Precedent - The proposals set an excellent precedent of broad community participation for restoration activities, based upon a strong foundation of comprehensive planning and implemented through innovative methods involving both public and private sector investments.



GENERAL LOCATION MAP

FIGURE I-1



WATERSHED DIAGRAM

FIGURE I-2

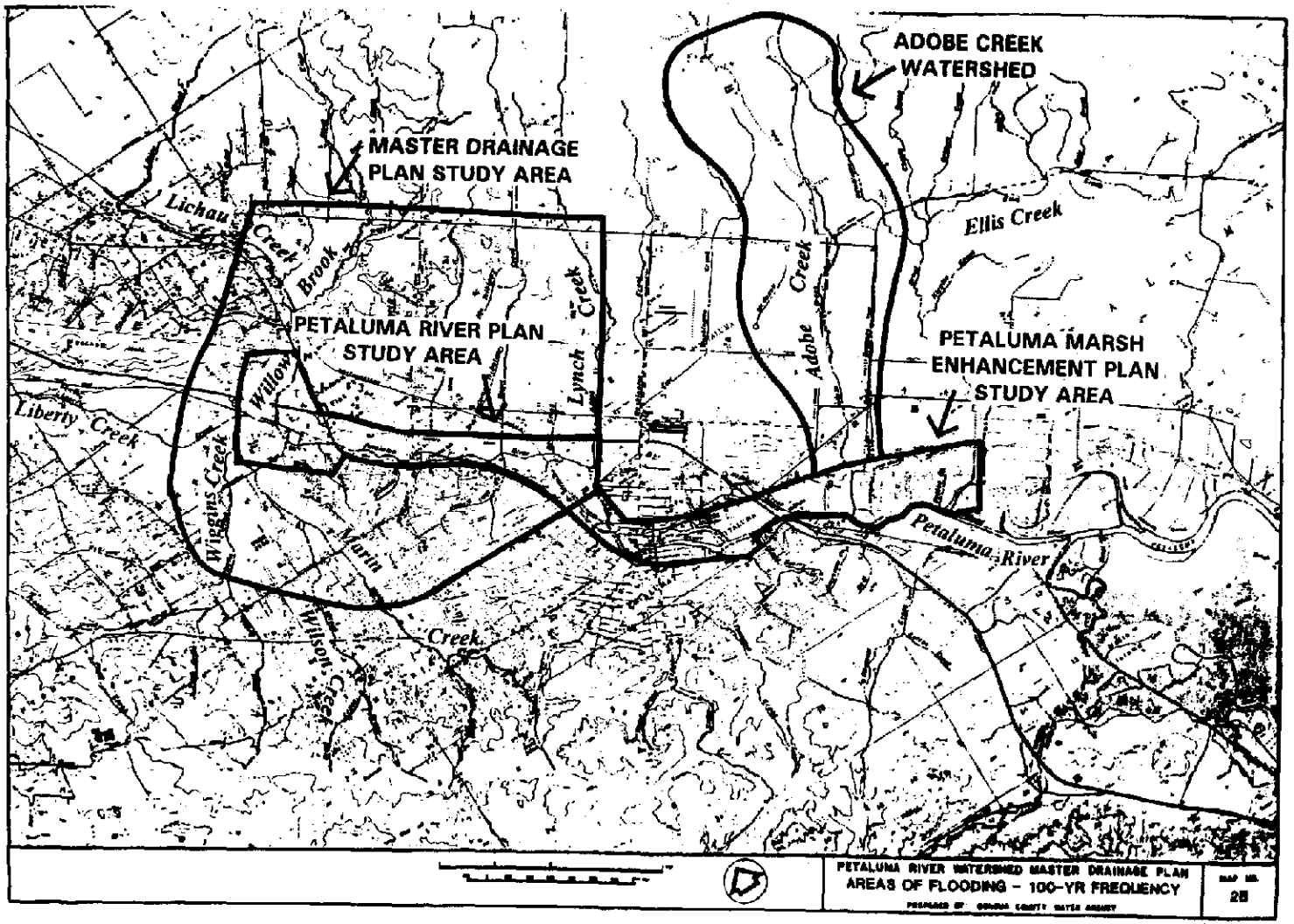


FIGURE I-3

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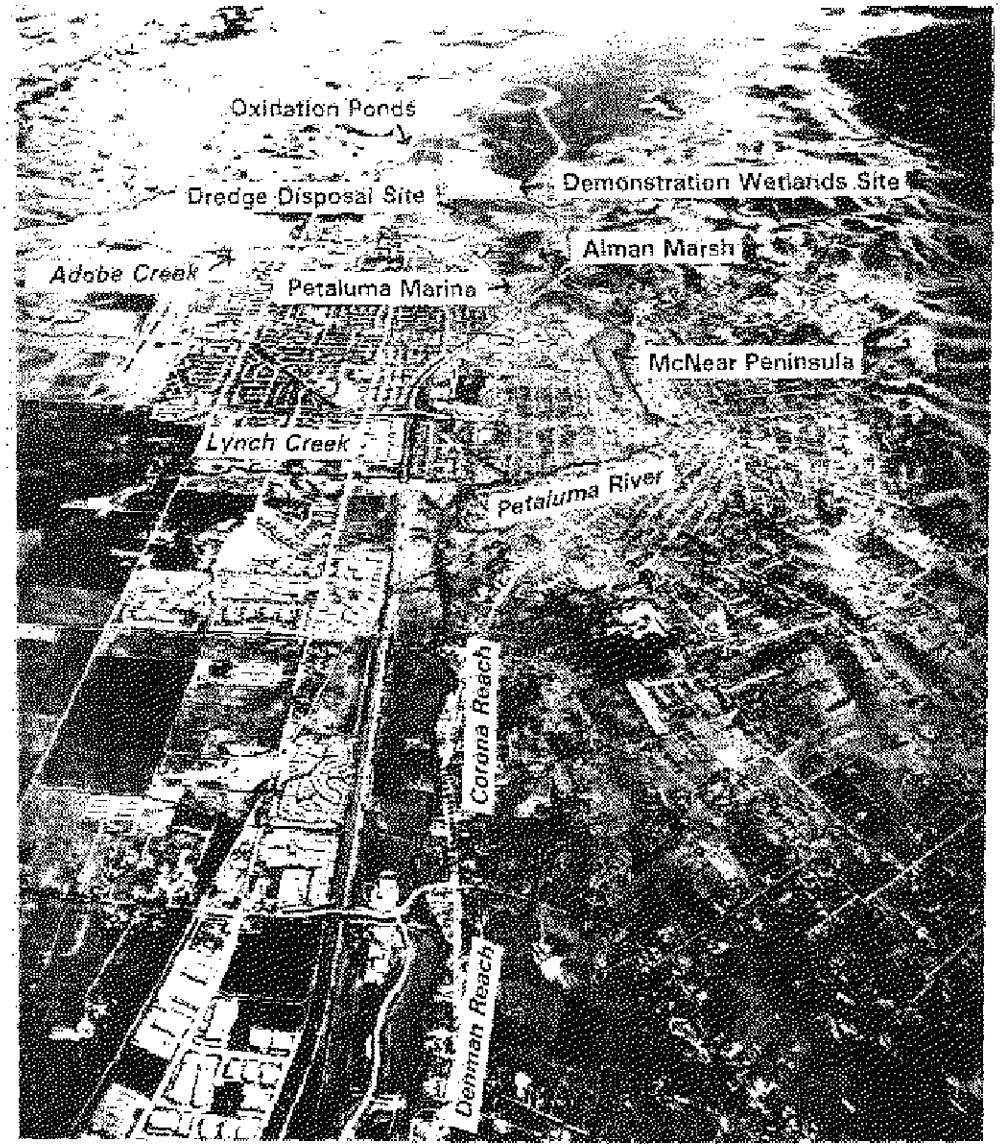
FIGURE I-4



City of Petaluma looking southwest toward San Pablo Bay, 1984. The Marsh Plan (1992) envisioned 500 acres of restored tidal marshes at the upper end of the estuary. The River Plan (1996) envisions restoration of a continuous riparian corridor or greenway connecting the tidal marshes through town to the upper watershed areas. Adobe Creek is the pilot project for a comprehensive approach to long-term monitoring and habitat management, incorporating a public education program with research/science and utilizing local schools to re-enact the ancient hide and boulder economy.

I-003362

II. *Petaluma Watershed Science and Habitat Management Program*
Adobe Creek Pilot Project

APPLICANT: City of Petaluma
P.O. Box 61
Petaluma, CA 94953

PROJECT MANAGER: Jennifer Barrett, Senior Planner Phone: 707 778-4317
Fax: 707 778-4498

FINANCIAL MANAGER: David Spilman, Finance Director Phone: 707 778-4352
TAX IDENTIFICATION NUMBER: 94-6000392

PARTNERS/COLLABORATORS:

- Department of Water Resources - Funding for Restoration Design and Management Guidelines and the Adobe Creek Demonstration Restoration Project
- Petaluma Education Foundation - Funding for Companion Educational Program
- Resource Conservation District - Management Guidance and Property Owner Assistance
- Sonoma County Water Agency - Technical Guidance and Hydraulic Maintenance
- Dept. of Fish and Game - Technical Review and Habitat Management Oversight
- San Francisco Estuary Institute - Training, Data Analysis and Regional Monitoring Program
- Sonoma State University - Volunteer Program, Data Collection and GIS Mapping
- Adopt-A-Watershed Program - Volunteer Monitoring and Educational Program Coordinator

PROJECT TYPE: Endowment, FY97-98; Design Services FY 98-99; Construction FY 99-00

REQUESTED FUNDING

FY 97-98	FY 98-99	FY 99-00
Endowment	Professional Services	Construction
$529,600	$148,513	$313,654

SITE CHARACTERISTICS: Adobe Creek Watershed encompasses approximately 7 square miles with 6-1/2 miles of shaded riparian aquatic habitat and ½ mile of brackish tidal channel entering the Petaluma River near the Petaluma River Marsh and upper edge of estuary. Adobe Creek supports native steelhead trout and fall-run chinook salmon. United Anglers operate a state-of-the-art fish hatchery at Casa Grande High School and have successfully reared native trout and salmon from Adobe Creek. Their first salmon release was in 1995.

LOCATION: North Bay, Sonoma County, Petaluma River Watershed, Adobe Creek tributary

PROPOSED PROJECT CHARACTERISTICS: Endowment to fund long-term monitoring and management program to provide for adaptive management and proper maintenance for the Adobe Creek Restoration Demonstration Project already funded and nearly completed; provide funding for Watershed Science Program and Upper Watershed Improvements to remove the upper diversion structure, complete erosion control measures and fence the entire 5 mile riparian corridor to exclude cattle grazing.

SECTION III
PROJECT DESCRIPTION

"One must be the change you wish to see in the world."

Gandhi

III. PROJECT DESCRIPTION

Adobe Creek has been the epitome of the many stressors affecting the San Francisco Bay-Delta system related to water supply, water quality and ecosystem degradation. General Vallejo himself built his historic Petaluma Adobe adjacent to Adobe Creek where the water was fresh year-round and the fish were plentiful. As the Petaluma Valley was settled, water diversion structures were built in the upper watershed, the lower section was channelized for flood control and the adjacent marshes were diked and drained for agricultural use. The area surrounding Adobe Creek has been subjected to extensive grazing in the upper watershed and urban encroachments in the lower watershed.

The Adobe Creek Restoration Project is an amazing story of a local science teacher's initiative to restore the fishery in Adobe Creek. The teacher's dream was germinated by the hope, determination and persistence of the high school students which eventually blossomed into community-wide awareness that scattered the seeds of change. The community's awareness has now grown into a long-term commitment to stewardship of Adobe Creek which is reflected in the completion of the Restoration Demonstration Project for the lower watershed areas and the elimination of all stream diversions for municipal use. The City of Petaluma is one of the first entities in the State to successfully petition the State Water Resources Control Board to retain water rights for in-stream fish and wildlife use. The retention of in-stream water rights will ensure adequate attraction flows are available in perpetuity for anadromous fish. Figure III-1 illustrates the Adobe Creek Watershed and the many restoration improvements that have been completed, primarily with local resources. Table III-1 lists the many contributors and individual projects.

The City of Petaluma is seeking matching grant funds from CALFED in the amount of $529,600 to begin an endowment for the long-term Monitoring and Habitat Management Program for the Petaluma River Watershed. This endowment will be used to fund the pilot program on Adobe Creek in conjunction with the Adobe Creek Restoration Demonstration Project. The endowment fund will provide a long-term source of revenue for comprehensive monitoring, management and maintenance of the Adobe Creek Demonstration Restoration Project. The Habitat Management Program will be tied to the Educational Program and Regional Monitoring Program through a Watershed Science Project. The pilot project will provide a model program of long-term stewardship and habitat management for other communities in the Bay-Delta system. The City will seek other contributions to build this endowment fund to a goal of $2 million and provide a roll-out program for other tributaries and restoration efforts that will eventually encompass the entire lower Petaluma River Watershed.

Additional grant funds in the amount of $148,513 are requested in FY 98-99 to provide training, mapping and professional services to set up the Watershed Science Program and for design services to evaluate removal of the upper watershed diversion structure and related erosion problems. In FY 99-00, an additional $13,654 is requested to complete restoration activities in the upper watershed of Adobe Creek including removal of the upper diversion structure, installation of smaller drop structures, erosion control measures and fencing of the entire 5 mile riparian corridor.

A. PROJECT APPROACH

The City of Petaluma will implement the project utilizing consultant contract services to complete training and site assessment (S. F. Estuary Institute), GIS mapping (Sonoma State University), and upper watershed design studies and annual monitoring (Questa Engineering). The organization of the project team is illustrated in Figure III-2. Endowment funds will be invested by the City of Petaluma

Finance Department in a trust fund account dedicated solely for funding the long-term monitoring, management and maintenance of the Petaluma River Watershed. Trust fund investment earnings will be matched by local operating budgets and in-kind services from the City of Petaluma, Sonoma County Water Agency, Americorps Watershed Project, Sonoma State University, and Envirotech Operating Services as shown in Table IV-1 and IV-2. The program will focus on the Adobe Creek Watershed as the initial pilot project. The City and funding agency partners will seek additional endowment contributions to roll the program out to include other tributaries in the lower watershed area (i.e. Lynch Creek, Washington Creek, Willow Brook, etc.) and the upper reaches of the Petaluma River.

City staff will provide project management, interagency coordination/permitting, technical review and construction oversight, grant administration and financial reporting, as well as property owner and volunteer coordination in the lower watershed and headwaters which is owned by the City (i.e. Lafferty Ranch). The Resource Conservation District will provide technical guidance in evaluating the upper watershed and provide assistance/coordination with property owners. The Sonoma County Water Agency will provide technical support staff for hydrologic modeling and hydraulic maintenance. Additional consultant contract services will be utilized to prepare design/bid documents and for construction management services for the upper watershed improvements. The City will publicly bid the upper watershed restoration project and award the construction contract to the lowest responsible bidder.

B. LOCATION AND/OR GEOGRAPHIC BOUNDARIES OF PROJECT

The Petaluma River Watershed is situated in the North Bay draining into San Pablo Bay as shown in Figures I-2. The watershed comprises an estimated 32 square miles with numerous tributaries. The Petaluma River extends 14 miles from the mouth at San Pablo Bay through the City of Petaluma. The zone of tidal influence extends through the City of Petaluma beyond the confluence of Lynch Creek where the River transitions into freshwater riparian zone that extends north to the city limits. The headwaters of the Petaluma River consist of a convergence of several creeks within a broad natural flood retention area known as Denman Flats at the northernmost boundary of the City. The upper watershed areas are predominantly characterized by dairy farms.

Adobe Creek, the pilot study tributary, drains into the Petaluma River at the upper end of the estuary within the zone of tidal influence at the Petaluma Marsh as illustrated in Figures I-3 and 4. The Adobe Creek watershed consists of an estimated 7 square miles with an estimated 6-1/2 miles of shaded riparian aquatic habitat and over 1/2 mile of tidal channel within the lower reach. Adobe Creek supports native steelhead and fall-run chinook salmon. United Anglers at Casa Grande High School operate a state-of-the-art fish hatchery which has successfully reared native steelhead and salmon from Adobe Creek. The first release of native salmon was completed in 1995. The salmon are expected to return in 1998. Refer to articles provided in Section VII.

C. EXPECTED BENEFITS

Sensitive fish species known to exist in the Petaluma River and Adobe Creek include steelhead trout and fall-run chinook salmon as well as, Delta smelt and Sacramento splittail within the tidal reaches. The Petaluma River also supports the non-native striped bass. These species directly benefit from the Adobe Creek Demonstration Restoration Project which enhanced existing habitat values and provided restored shaded riparian aquatic habitat, in-channel tidal habitat, and a release pond for the steelhead

trout. The endowment would empower the local agencies and community to engage in a program of long-term stewardship of the watershed and support local efforts to nurture a once thriving fishery of steelhead and salmon back to life. The project will provide long-term benefits that enable the City and partner agencies to apply adaptive management techniques to restore the health of the Petaluma River watershed through natural processes. A broader benefit from the Watershed Science Project is the educational and research value it would provide in the comprehensive evaluation of the relationship of sediment supply, hydrology and stream geomorphology.

D. BACKGROUND AND BIOLOGICAL/TECHNICAL JUSTIFICATION

The Pilot Project for Adobe Creek evolved out of the City's effort to establish new Channel Design and Management Guidelines that would enable the local flood control agency and the Department of Fish and Game to agree on appropriate restoration techniques. The Sonoma County Water Agency is responsible for reviewing plans for drainage and hydraulic capacity and has maintenance responsibilities over many of the stream corridors and flood control channels in Sonoma County. The County's adopted flood control design criteria does not provide for woody vegetation within flood control channels. The present channel design criteria generally require the use of heavy equipment to periodically dredge the channels, removing all vegetation to maintain channel capacities. As a result, restoration efforts are often thwarted by conflicting goals of flood control and the need to maintain channel capacities. Dredging of the channels setbacks the successional stages of plant growth, opening the channel bottom to sunlight, increasing the undergrowth and in-channel tules which in-turn trap sediments, creating a vicious cycle of flood control maintenance.

Restoration Design And Management Guidelines

The City of Petaluma received grant funds from the Department of Water Resources Urban Streams Program to develop new channel design guidelines that provide for restoration of stream corridors. The Restoration Design and Management Guidelines define alternative channel design and management methods that would enable restoration within flood control channels and other tributary streams without compromising flood control functions. The primary focus of the new Guidelines is to provide for channel designs that enable a mature riparian canopy to become established through the development of companion channel management programs that utilize the natural restoration process to enhance habitat values while maintaining adequate capacity for flood flows. Scientific studies have shown that the establishment of a mature riparian canopy can shade out brushy undergrowth that cause sedimentation build up and obstructions to streamflow, thereby minimizing the need for channel dredging over the long-term. The goal of the Management Guidelines is to show that careful hand pruning of willows and other in-stream plants during the initial restoration period can lead the way to a more self-sustaining system that will reduce the long-term maintenance costs of flood control channels while improving the habitat for fish and wildlife.

In order to balance flood control requirements with restoration goals the design criteria generally require greater setbacks or stream widths to accommodate flood terraces or larger capacities to ensure adequate flood protection. Vegetated channels also require more extensive maintenance and careful management, at least during the initial restoration period, to ensure adequate flood protection. An important aspect of implementing these Guidelines will be in providing adequate funding for maintenance and management of the natural stream corridors within the City to prevent flood liabilities. Mechanisms to fund these maintenance activities will need to be explored and may include

establishment of landscape assessment districts for streams within new developments, establishment of fees for endowments/trusts and/or increasing City maintenance budgets through parcel taxes.

The Guidelines identify specific stream segments within Petaluma as priorities for implementation. Higher priority is given to channel segments that are presently in a predominantly natural condition or have potential for restoration. Adobe Creek, Lynch Creek, Washington Creek and the Petaluma River are listed as the highest priorities.

Adobe Creek Restoration Plan And Management Program

To model the new techniques, the grant included a demonstration restoration project along the lower watershed areas of Adobe Creek that will integrate habitat restoration and wildlife protection with public access, education and recreation while maintaining the channel's flood control functions. The Adobe Creek Restoration Plan was envisioned to be carried out in phases as funding became available with assistance from community groups, local contributions and volunteers. Funding for full implementation of the Restoration Plan for the lower watershed area has now been secured from a variety of resources as described in Table III-1. Figures III-3, 4 and 5 illustrate some of the restoration that has been completed.

Community Involvement and Educational Program

The City has also been working with the Petaluma Educational Foundation and teachers from Casa Grande High School and other local schools to develop an educational program to assist in the restoration effort and provide an ongoing program of management and monitoring of the restoration project. The Petaluma Educational Foundation provided a $12,000 contribution towards the Adobe Creek Restoration Project. A Self-Monitoring Manual is being developed for use by local schools in conjunction with the Adopt-A-Watershed Program. The remaining funds will be used as seed money to develop a more comprehensive Watershed Science Project for Adobe Creek. The Watershed Science Project will provide a more scientific approach to the monitoring program and integrate local monitoring efforts with the Regional Monitoring Program.

The Watershed Science Project seeks to integrate schools, research scientists, resource agencies, local governments, residents and community organizations in a focused effort to restore Adobe Creek through the use of adaptive management techniques. This approach empowers local community groups into taking positive actions to solve environmental problems by focusing on a particular watershed. The program provides an opportunity for the students and community members to directly learn about the diversity of habitats within a given watershed, observe the natural successional stages of plant communities and to participate in applying resource management techniques.

E. PROPOSED SCOPE OF WORK

The proposed scope of work includes four interrelated elements that will work together to form a comprehensive monitoring and adaptive habitat management program for the Petaluma River Watershed. The first element is the Watershed Science Project which will establish the baseline data and focus for the monitoring and educational program and volunteer efforts. The second element is the upper watershed improvements (fencing) and design study to address the critical issues of habitat deterioration (grazing and erosion) near the headwaters of Adobe Creek. The third element is the

long-term monitoring program that would provide professional assistance in evaluating stream conditions, preparing annual reports and coordinating the data collected with the Interagency Management Team, the Regional Monitoring Program, and the Local Educational Program. The fourth element is the Habitat Management Program which will utilize the monitoring data results and interagency evaluation to determine appropriate adaptive management techniques and maintenance needs to nurture the stream back to a healthy, thriving steelhead and salmon fishery. The following outlines the work scope proposed for funding by CALFED.

Watershed Science Project. This element is based upon the Bay Area Watersheds Science Plan developed by S.F. Estuary Institute to provide coordination among various government programs, educational programs, monitoring programs and non-profit groups involved in environmental education, watershed uses, research and management. The project involves mapping the ecological history, geomorphology and hydrology of a watershed and developing computer models of flow and sedimentation; conducting a detailed assessment of the watershed; developing objectives for restoration activities; and, developing protocols for the long-range monitoring program that will contribute to the scientific understanding of watersheds in the Bay Area. Much of this work has been completed on Adobe Creek through the development of the Restoration Design and Management Guidelines for the Petaluma River Watershed, the Adobe Creek Restoration Demonstration Project, and the Self-Monitoring Training Manual. The scope of work for this element involves funding the establishment of a Riparian Station and baseline mapping for a more comprehensive monitoring and habitat management program. Funding will be used to provide training of agency staff and volunteer coordinators for the monitoring program and detailed GIS mapping. Endowment fund earnings will be used to continue the monitoring program indefinitely and eventually roll-out the effort to the entire Petaluma River Watershed.

Upper Watershed Design Study and Improvements. The upper watershed design study will focus on an evaluation of the upper diversion structure and erosion problems that exist at the headwaters of Adobe Creek. The upper diversion structure was installed in the late 1800's and has created an extensive 18-foot drop in the channel bed as shown in Figure III-7. Upstream of the diversion structure is a massive landslide as shown in Figure III-8 that is being undermined by the creek itself. The concern is that the diversion structure will continue to undercut the channel bed and eventually cause extensive erosion and sedimentation of downstream spawning habitat from the landslide. Access to the creek at this location is difficult and steep. The design study will evaluate the feasibility of removing the diversion structure and installing a series of smaller drop structures. Bank stabilization and erosion control measures will also be evaluated. Construction techniques will also need to be evaluated since the use of heavy equipment will likely be seriously limited by the site's constraints. Fencing of the entire 5 mile creek corridor is also needed in the upper watershed areas to prevent cattle grazing of the riparian vegetation, which contributes to the erosion problems.

Long Term Monitoring Program. The long term monitoring program will be funded annually through the endowment earnings and work in conjunction with the volunteers in the Watershed Science Project described above and the Habitat Management Program described below. Adobe Creek will be monitored and managed through a professional services agreement with a qualified team working in conjunction with the agencies and the educational program coordinators. The professional team will collect and compile monitoring data from the volunteer groups, conduct detailed field assessments and provide monitoring reports to the City for distribution and review by the interagency team. The professional team will include a contract with Sonoma State University for

continuing mapping services and the S.F. Estuary Institute to further compile and analyze the data reports in conformance with the Regional Monitoring Program. The consultant team and the S. F. Estuary Institute will provide recommendations on management needs in consultation with the Department of Fish and Game, Sonoma County Water Agency, National Marine Fisheries Service and other responsible agencies as appropriate. The City will oversee the monitoring and management program, coordinating activities of the volunteer groups, professional team and outside agencies.

Habitat Management Program. The interagency team will analyze the data collected, conduct field reviews and determine appropriate management actions for the annual maintenance program. Annual maintenance and management activities will be funded through the endowment earnings to provide for erosion control, bank stabilization, sediment removal, stream structural elements (i.e. maintenance of fish ladder, drop structures etc.), willow pruning, weed control, and removal of invasive or exotic species as appropriate. Actual maintenance activities will be carried out by City and County staff working with landscape service contractors and the Sonoma County Water Agency Americorps Watershed Program and local volunteer groups and/or publicly bid as appropriate.

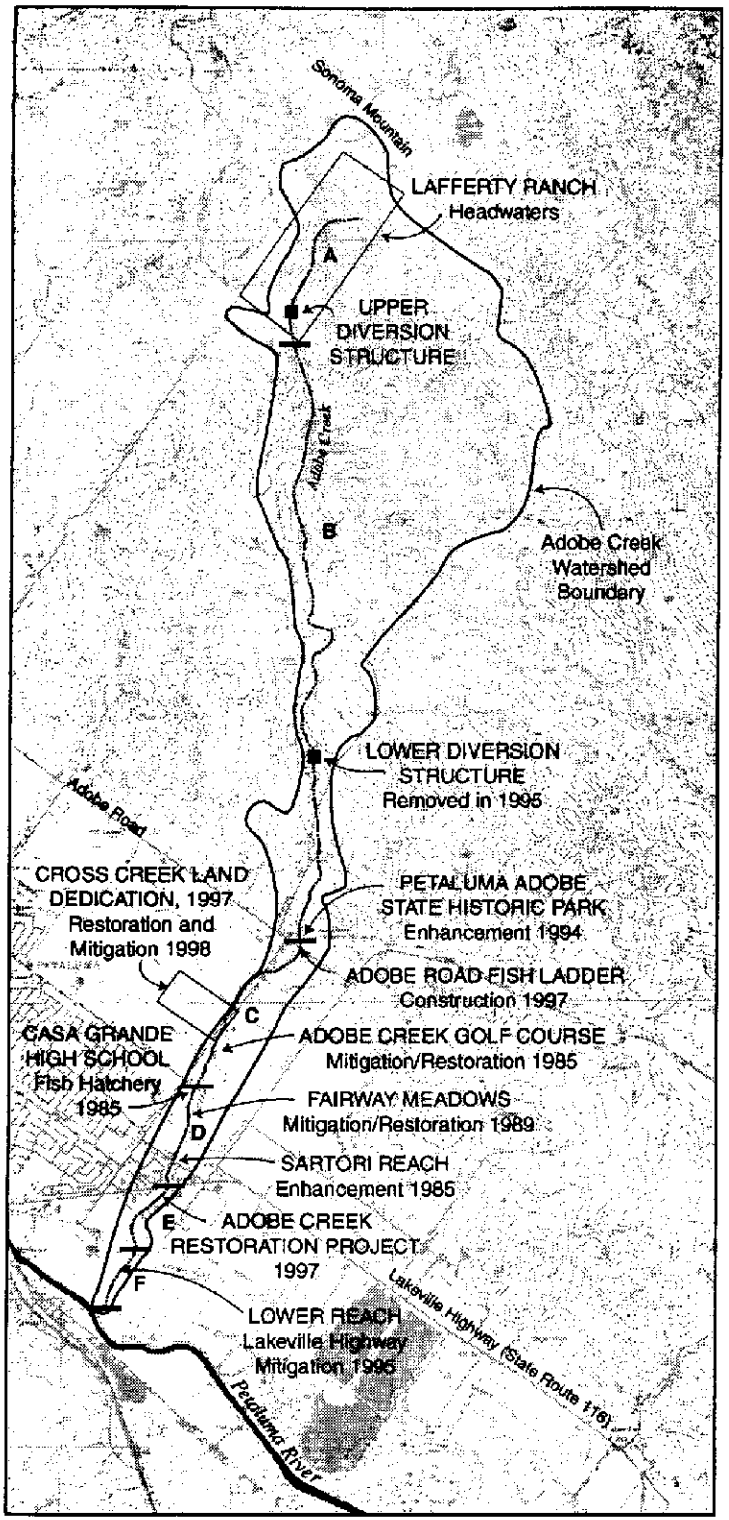
F. MONITORING AND DATA EVALUATION

A long-term comprehensive Monitoring Program and Habitat Management Plan will be developed in conjunction with the S. F. Estuary Institute's Regional Monitoring Program through the Watershed Science Project as discussed above. This program will tie together and build upon the Restoration Design and Management Guidelines for the Petaluma River Watershed; the Adobe Creek Restoration Plan and Management Program that addresses management needs in the lower reaches; and, the Lafferty Ranch Access and Management Plan (currently underway) for the headwaters of Adobe Creek.

G. IMPLEMENTABILITY

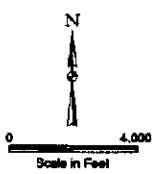
The City has an established framework for implementation of the Watershed Science Project and Habitat Management Program set up through the Department of Water Resources Urban Streams Program grant. The grant was used to fund the development of new Restoration Design and Management Guidelines for the Petaluma River Watershed and provided funding for the Adobe Creek Restoration Demonstration Project. The Guidelines are completed and have been adopted by the City of Petaluma for use on specified streams where adequate management funds are available. Additional seed money for the educational program has been provided by the Petaluma Educational Foundation. A Self-Monitoring Training Manual for Adobe Creek is being developed by the City for use by the Adopt-A-Watershed Program and local participating classrooms. The City has a contract for professional services with Questa Engineering for construction management and monitoring of the Adobe Creek Restoration Project that could be readily modified to accommodate the additional tasks envisioned in the Watershed Science Project and Habitat Management Program. The City has proposals from the S.F. Estuary Institute and Sonoma State University which would form the basis for additional professional service agreements. Envirotech Operating Services, Americorps Watershed Project, the Resource Conservation District, Sonoma County Water Agency and many others have already pledged their support.

Adobe Creek Restoration Project



Legend

Segment	Reach
	UPPER WATERSHED
A	Lafferty Ranch
B	Cheda and Sartori Ranches
	UPPER REACH
C	Cross Creek Subdivision
	Adobe Creek Golf Course Subdivision
	MIDDLE REACH
D	Fairway Meadows Subdivision Sartori/Casa Del Oro Lakeville Reach
E	Lakeville Business Park McDowell Reach
	LOWER REACH
F	Schollenberger Park



Source: USGS 7.5-minute topographic map (Petaluma River and Glenn Ellen Quadrangles)

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TABLE III-1

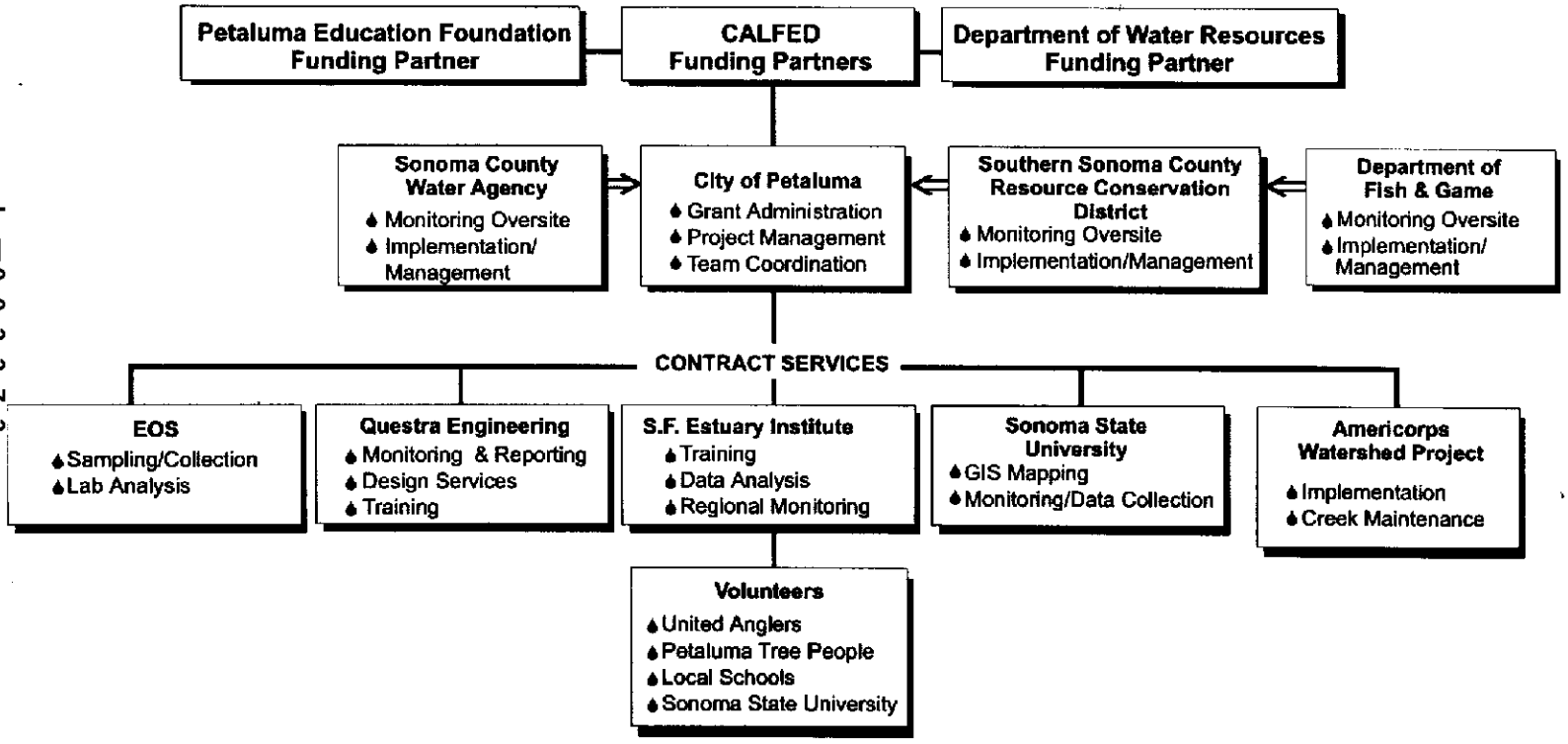
ADOBE CREEK RESTORATION DEMONSTRATION PROJECT

SUMMARY OF PROJECTS COMPLETED OR UNDERWAY

PROJECT PHASE/TYPE	STATUS		ESTIMATED COST	FUNDING SPONSOR
PLANNING AND ENVIRONMENTAL REVIEW				
Adobe Creek Riparian and Aquatic Habitat Restoration				
Lafferty Access and Management Plan (Adobe Creek Headwaters)	Underway 1997-98		78,000	City of Petaluma
Adobe Creek Restoration Plan and Management Program	Approved July 1998		18,000	Dept. of Water Resources/Private Contributions
Restoration Design and Management Guidelines	Approved July 1998		58,000	Dept. of Water Resources
Subtotal		**$**	**154,000**	
SITE ACQUISITIONS				
Adobe Creek Riparian and Aquatic Habitat Restoration				
Upper Reach Cross Creek Dedication 40 acres	Acquired 1997		280,000	Developer Contribution
Middle Reach Fairway Meadows Dedication 2 acres	Acquired 1989		400,000	Developer Contribution
Lower Reach Lakeville Business Park Dedication 3 acres	Acquired 1979		390,000	Developer Contribution
Lower Reach Dredge Disposal Site Acquisition			200,000	
Subtotal		**$**	**1,270,000**	
IMPLEMENTATION/CONSTRUCTION				
Adobe Creek Restoration Project				
Adobe Creek Fish Hatchery	Completed 1992		500,000	United Anglers/Private Donations
Lower Reach Restoration (Lakeville Highway Mitigation Project)	Completed 1995		225,000	City of Petaluma
Middle Reach Enhancment (downstream of McDowell Blvd.)	Completed 1995		22,000	Petaluma Tree People
Middle Reach Demonstration Restoration Project (Phase II)	Under Construction 1997		336,000	Environmental Enhancement Mitigation Program
Middle Reach Enhancment (upstream of Sartori Drive)	Completed 1985		10,000	United Anglers
Middle Reach Restoration (Fairway Meadows Mitigation Project)	Completed 1989		130,000	Developer Contribution
Upper Reach Restoration (Adobe Creek Golf Course Mitigation Project)	Completed 1985		260,000	Developer Contribution
Upper Reach Restoration (Cross Creek Restoration and Mitigation Project)	In Design for Const. 1998		250,000	Developer Contribution
Upper Watershed Adobe Road Fish Ladder (County of Sonoma)	In Design for Const. 1998		40,000	United Anglers/NFWS
Upper Watershed Remove Lower Diversion Structure	Completed 1995		10,000	City of Petaluma
Subtotal		**$**	**1,783,000**	
TOTAL PROJECT COSTS ESTIMATED		**$**	**3,207,000**	

FIGURE III-2

Adobe Creek Watershed Science Project & Habitat Management Program



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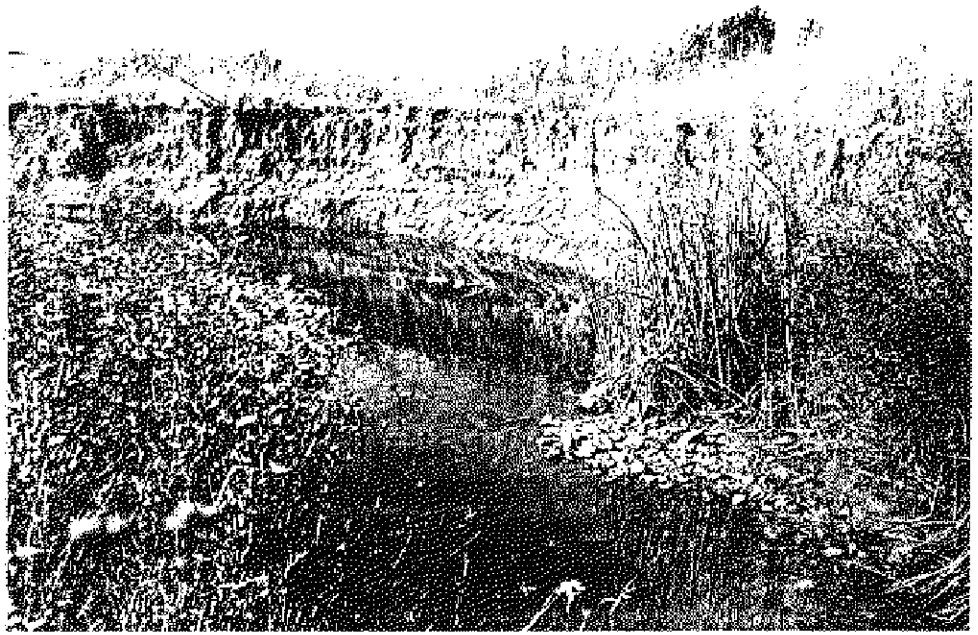
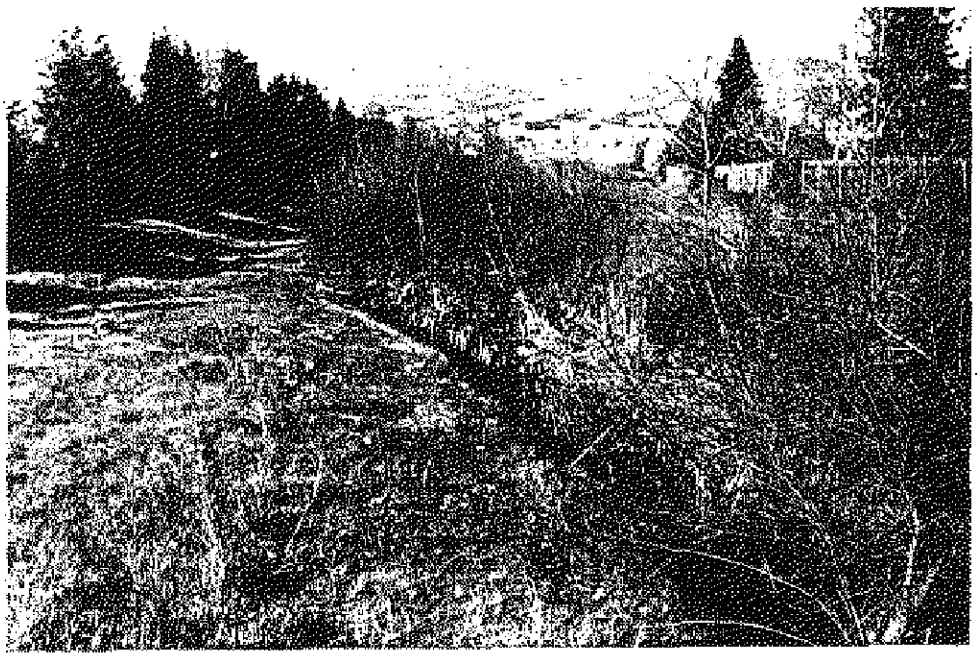
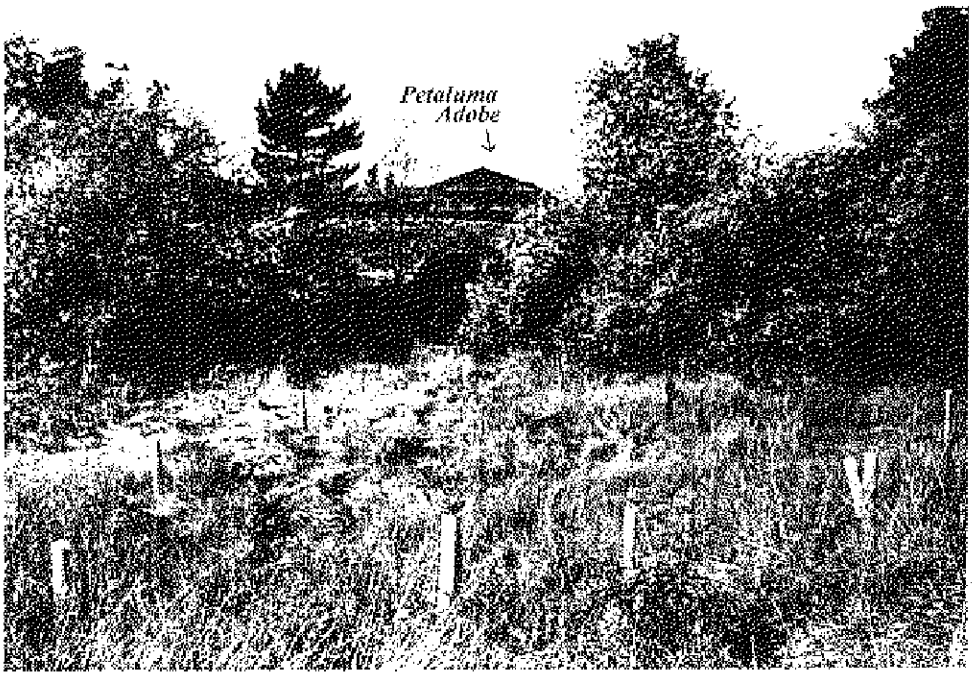


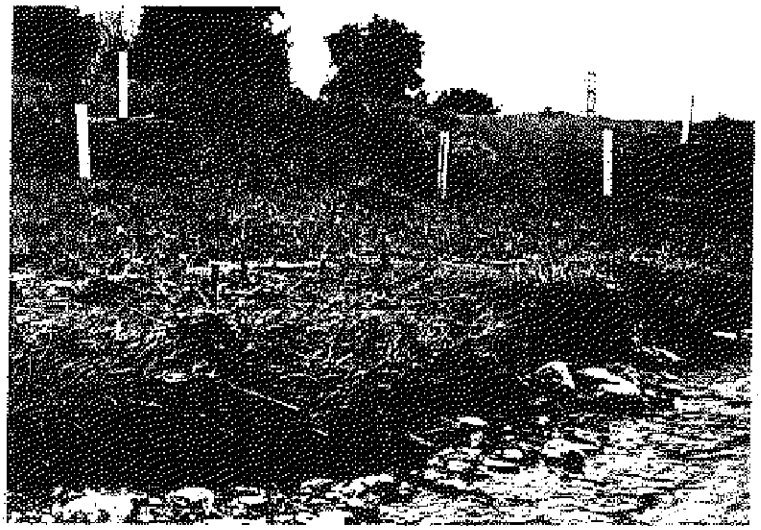
This eroded bank has been laid back to create wetland terraces inundated by high tides as shown below.



↑ *Arroyo thicket growing in the channel bed.* *Big leaf maples planted from 5-gallon containers.* ↓

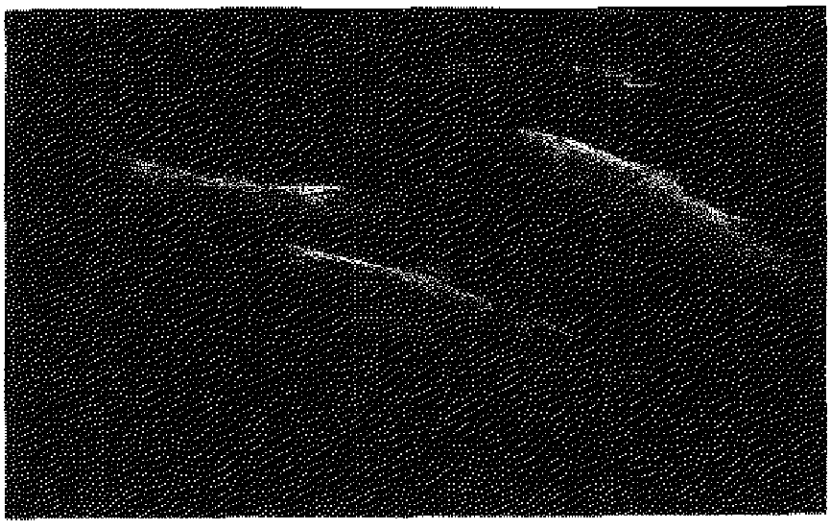


Polypropylene tree shelters protect oak seedlings from herbivores and dessication at the Petaluma Adobe State Historic Park.



Willow cuttings planted in terrace of Adobe Creek.

Wetland terraces and a release pond for steelhead trout were excavated in the lower reach of Adobe Creek (upper photo). A drop structure was installed to scour the release pond, ensuring the pool will remain deep for the young smolts. Steelhead and salmon migrate to spawning habitat upstream during high flows.



SAN FRANCISCO BAY AS ESTUARY

"From the diaries of the early explorers the picture we get is of a moist, even swampy land — Water was everywhere, especially where the land was flat. The explorers suffered far more from mosquitoes, spongy earth, and hard-to-ford rivers than they did from thirst — even in the heat of summer. Places that are now dry were then described as having springs, brooks, ponds — even fairly large lakes. In the few years before channelization...all the major rivers — the Carmel, Salinas, Pajaro, Coyote Creek, and Alameda Creek, as well as many minor streams, spread out each winter and spring to form wide marshy valleys."

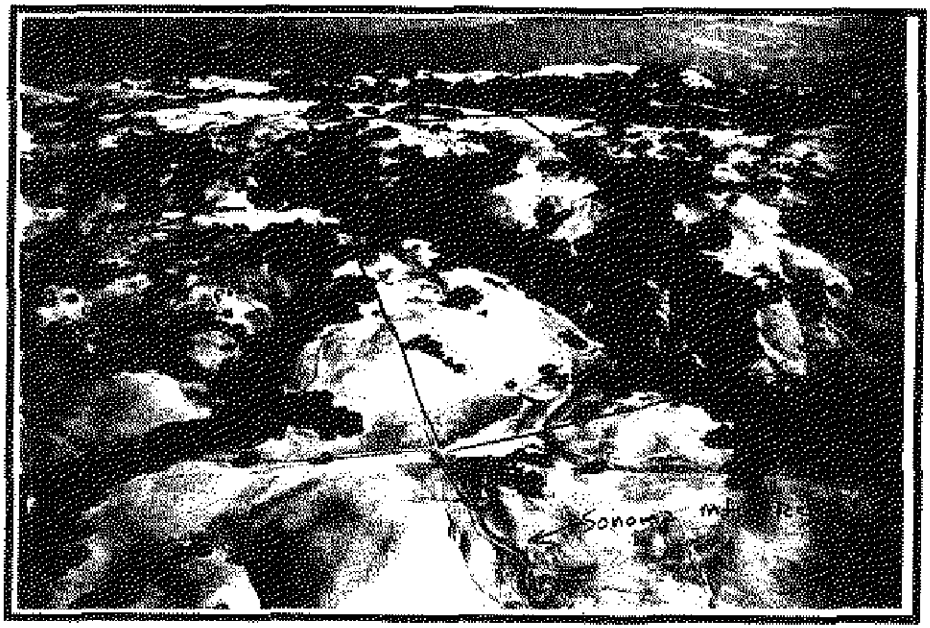
Malcolm Margolin, The Ohlone Way. Copyright 1978.

THE San Francisco Bay system once collected water from nearly half the land area of California. This fresh water, filtered clean by marshes, mixed with salty ocean tides to form a complex ecosystem called an **estuary**. An estuary teems with life. It is a unique area where young fish and other wildlife can begin their lives in an environment less salty and more protected than the ocean. Many fish, such as herring, bass and salmon could not exist without his headstart.

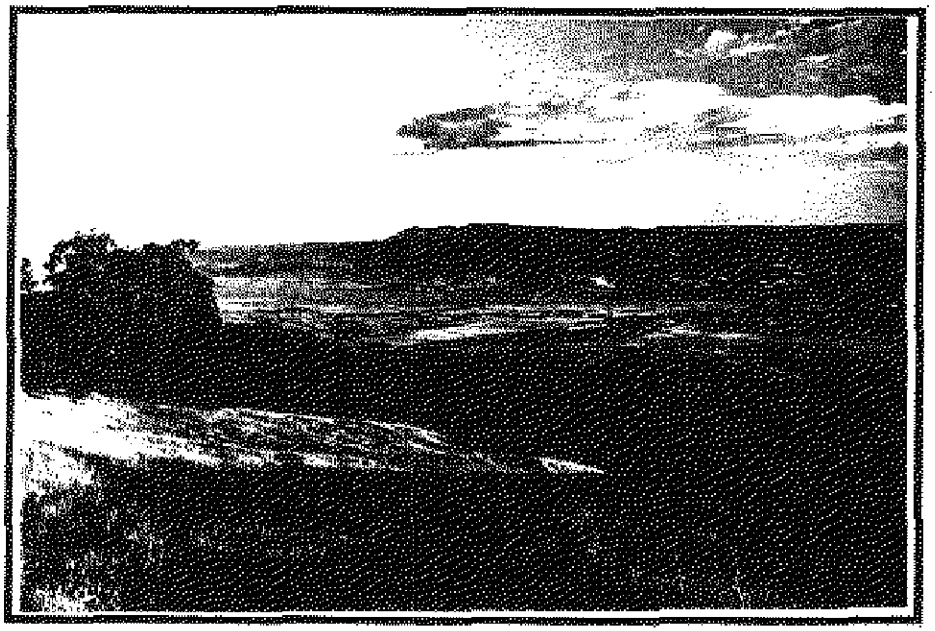
The circulation of water sustains life in the Bay. It carries nutrients to the plants, fish and wildlife who live here, and flushes out the natural and man-caused commercial and residential wastes. Water circulation forms a different pattern in each part of the Bay depending on the force of the tides and the quantity of fresh water that enters. Water from the Delta takes about three weeks to reach the Golden Gate in winter. By the end of summer, with only small freshwater inputs, the South Bay requires five months to flush.

People have diverted most of the water that once circulated throughout the Bay toward other uses. As we generate ever more water diversion projects and fill Bay marshes, the delicate balance of fresh and salt water is changed and Bay wildlife is threatened. What life will the Bay hold in the future? What sights will your children and your children's children see as they stand on this spot?

Interpretive signs, donated by the Coastal Conservancy, were installed along lower Adobe Creek and the Petaluma River trail which surrounds the City's dredge disposal site. These signs help educate the public about the problems affecting the San Francisco Bay Estuary and build community support for local restoration efforts.



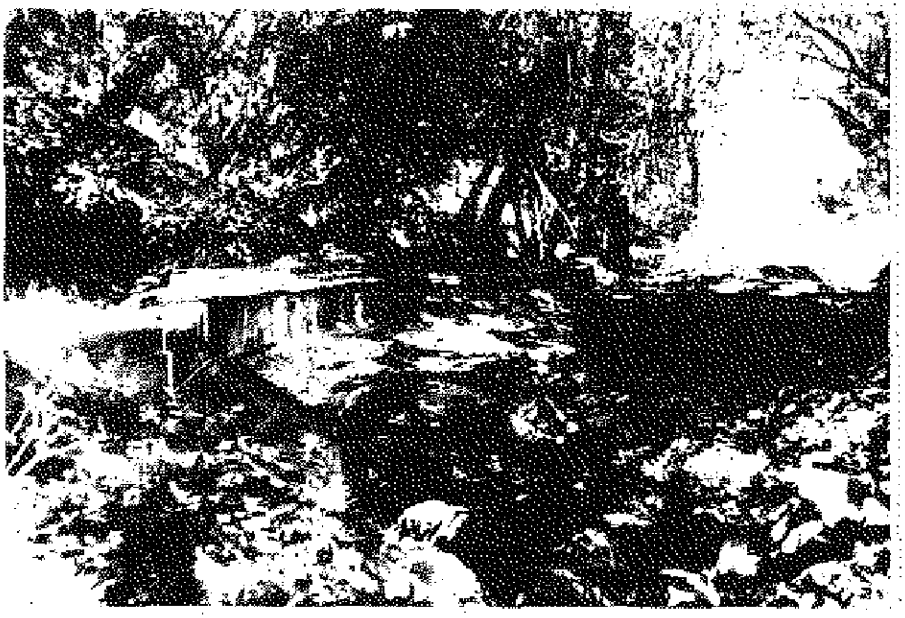
Extensive riparian overstory along Adobe Creek headwaters at Lafferty Ranch



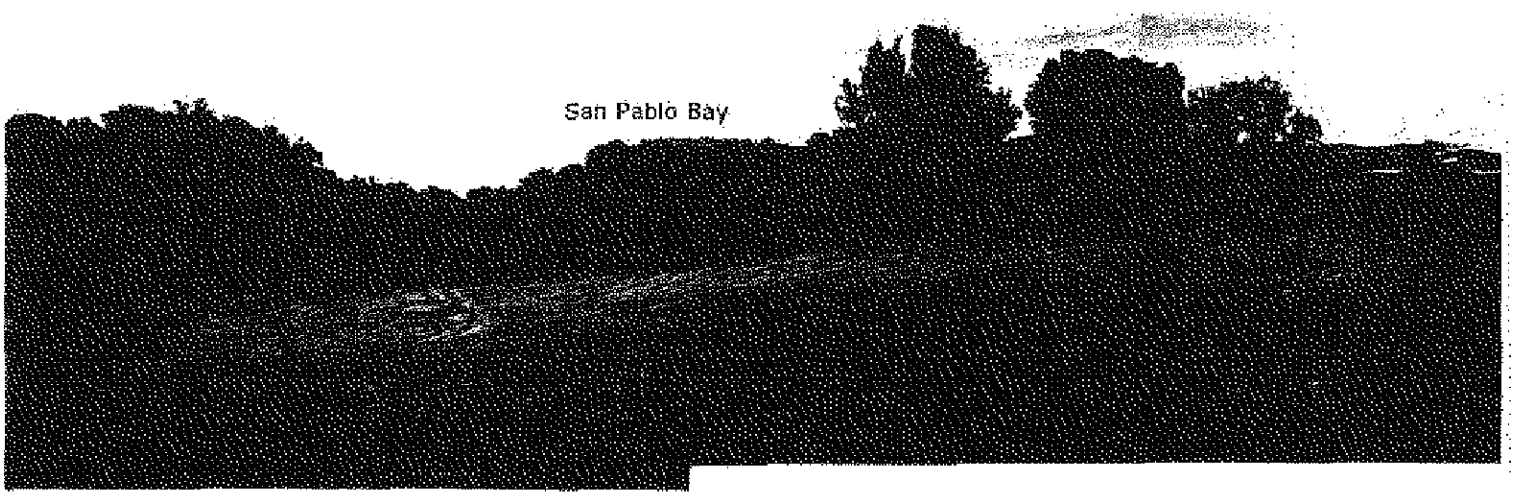
Adobe Creek near headwaters extending to the confluence Petaluma River

Adobe Creek Headwaters
August 1995

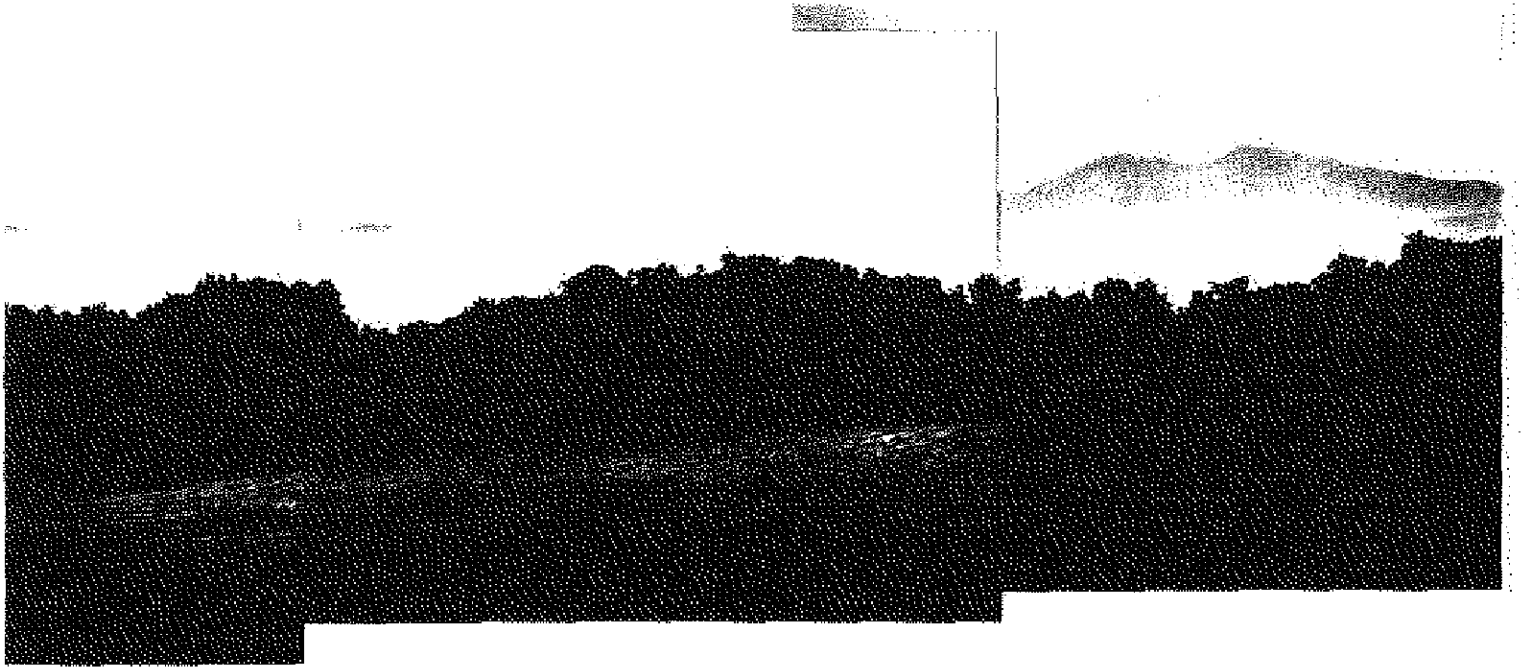
These landslides occurred above the upper diversion structure where the Adobe Creek channel continues to undercut the toe of the slope. Erosion in the upper watershed causes sedimentation of spawning habitat and lower watershed areas, requiring periodic dredging. Upper watershed improvements would stabilize the creek bank, remove the diversion structure and install a smaller series of drop structures to prevent further damage.



The upper diversion structure was constructed in the late 1800's to divert water from Adobe Creek to serve the town of Petaluma. The upper diversion structure has caused a deep 18-foot incision in the channel bed. The structure is being undermined and will eventually erode the upper watershed potentially damaging 6 miles of downstream spawning habitat.



View from Lafferty Ranch of Adobe Creek riparian corridor in foreground looking at the mouth of the Petaluma River at San Pablo Bay and the East Bay hills beyond.



View from Lafferty Ranch of Adobe Creek riparian corridor in foreground looking towards Carquinez Straits, Suisun Marsh and Mt. Diablo.

View from Lafferty Ranch of Adobe Creek riparian corridor in foreground looking at the Petaluma River Marsh. The City's Oxidation Ponds are visible in the lower right with Mt. Tamalpais towering above. Gnoss Field airport is visible in the center of the photo. San Pable Bay and Hamilton Airfield are visible in the upper left corner. The tidal marsh provides critical rearing habitat for anadromous fish and supports many endangered species.

I-003385

SECTION IV
COSTS AND SCHEDULE

"Make no small plans, for they fail to inspire the hearts of men.
Make only big plans, for they contain magic that will compel men's actions."

Daniel Burnham, 1903
"Father of City Planning"

IV. COSTS AND SCHEDULE TO IMPLEMENT PROPOSED PROJECT

A detailed cost estimate is provided in Tables IV-1 and IV-2. The proposed budget is summarized in Table IV-3. The proposed budget provides for a three-year schedule of implementation, beginning with the establishment of the Habitat Management Program Endowment Fund in FY 97-98 ($529,600 grant requested). Establishment of the Watershed Science Project and transfer of technology and science to the local volunteer and agency management group would be implemented in FY 98-99, along with design studies of the upper watershed diversion structure with a requested grant of $148,513. In FY 99-00 Upper Watershed Improvements would be implemented with additional CALFED grant funding of $313,654.

The proposed schedule for the Upper Watershed Improvements and Watershed Science Project is illustrated in Figure IV-1. A proposed schedule for the Annual Monitoring and Habitat Management Program is shown in Figure IV-2.

The City's present monitoring program for the lower watershed restoration improvements focuses primarily on the establishment of vegetation and appropriate hydrologic regime. There is presently no comprehensive monitoring program that evaluates stream habitat conditions as a whole system or provides for long-term habitat management needs. Local budgets for proper management and maintenance of restoration projects has proven to be inadequate and provides a significant constraint to restoration efforts. Without adequate funding for the long-term "care and feeding" of restored stream corridors, the ability of the City to undertake restoration improvements will be limited. The Adobe Creek Pilot Project would provide a funding mechanism for the long-term Habitat Management Program in perpetuity and form the basis for expanding the program to the encompass the rest of the watershed.

Funding for the Watershed Science Project is critical to providing training of key agency staff and volunteer coordinators. Monies invested in training activities are expected to generate "third party" benefits as the transfer of knowledge infiltrates various organizations, providing new insights and initiative for other restoration efforts.

Funding for upper watershed improvements is critical to protecting the spawning habitat that exists within Adobe Creek and preventing extensive damage.

Third Party Impacts. The City has an established long-standing relationship with the ranchers whose properties are traversed by Adobe Creek and feels confident that an agreement for fencing of the riparian corridor can be achieved.

Third party benefits include the educational benefits to Sonoma State University and many other local schools in environmental science applications and using GIS as a resource management tool; the research value of the program to the S.F. Estuary Institute Regional Monitoring Program; and, the sharing of knowledge and experience with various other communities interested in ecosystem restoration and watershed programs. Long-term benefits to the Petaluma Watershed and North Bay would accrue from the successful pilot project as the program would be rolled out to other tributaries and the Petaluma River with matching contributions from local sources.

Petaluma Watershed
Model Restoration and Habitat Management Program

TABLE IV-1

ADOBE CREEK PILOT PROJECT
UPPER WATERSHED RESTORATION AND HABITAT MANAGEMENT PROGRAM

ESTIMATED COSTS AND BUDGET

PROJECT TYPE, PHASE & TASK	OVERHEAD ADMIN	SERVICE CONTRACTS	MATERIALS ACQUISITION	PROJECT TOTAL	REQUESTED CALFED GRANT FY 97-98	REQUESTED CALFED GRANT FY 98-99	REQUESTED CALFED GRANT FY 99-00	LOCAL MATCH
UPPER WATERSHED IMPROVEMENTS								
Construction/Public Works								
Planning & Environmental Review Phase FY 97-98								
1. Lafferty Access and Management Plan and EIR	$ 15,600	$ 78,000	$ -	$ 93,600	$ -	$ -	$ -	$ 93,600
Design Phase FY 98-99								
1. Feasibility Study & Design Plans	4,143	20,713	-	24,856		20,713		4,143
Construction Phase FY 99-00								
1. Construction Cost Estimate	11,838		304,777	316,615 [1]			304,777	11,838
2. Construction Management, Inspection & Survey		8,877		8,877			8,877	
TOTAL PROJECT COSTS	$ 31,581	$ 107,590	$ 304,777	$ 443,948	$ -	$ 20,713	$ 313,654	$ 109,581

1. Cost could be reduced ($126,000) for 4 miles of fencing if an endowment fund is approved for the Southern Sonoma County Resource Conservation District as described in their proposal.

WATERSHED SCIENCE PROJECT								
Services								
Planning Phase FY97-98								
1. Software & Equipment for Riparian Station	$ -	$ -	$ 15,000	$ 15,000	$ -	$ 15,000	$ -	$ -
2. S.F. Estuary Institute Training Services	18,000	90,000 [2]		108,000		90,000		18,000
3. Sonoma State University GIS Mapping Services	4,560	22,800 [2]		27,360		22,800		4,560
TOTAL PROJECT COST	$ 22,560	$ 112,800	$ 15,000	$ 150,360	$ -	$ 127,800	$ -	$ 22,560

2. Cost could be reduced if USGS mapping proposal is funded by CALFED.

MONITORING, EDUCATION & HABITAT MANAGEMENT PROGRAM								
Services/Endowment								
Annual Operations and Management Budget								
1. Professional Monitoring and Management/Maintenance Services (Questa Eng.)		$ 32,320	$ -	$ 32,320	$ 15,520	$ -	$ -	$ 16,800
2. Professional Mapping Services (SSU)		960		960	960			-
3. Professional Analytical Services/Training (SFEI & SOS)		13,840		13,840	10,000			3,840
4. Interagency Field Consultation		5,400		5,400				5,400
5. Agency Maintenance and Management Services		22,500		22,500				22,500
6. Volunteer Services for Monitoring and Management Activities		22,400		22,400	-			22,400
7. Project Management and Administration	9,424			9,424				9,424
TOTAL OPERATING COSTS	$ 9,424	$ 97,420	$ -	$ 108,844	$ 26,480	$ -	$ -	$ 80,364 [3]

3. Matching funds from parcel taxes, landscape assessment district, maintenance budgets and volunteer labor (in-kind services).

REQUESTED ENDOWMENT FUNDS NEEDED @ 5% CAPITALIZATION RATE	$ 529,600

TOTAL REQUESTED GRANT: UPPER WATERSHED IMPROVEMENTS, WATERSHED SCIENCE, & HABITAT MANAGEMENT PROGRAM	FY 97-98	FY 98-99	FY 99-00	CALFED TOTAL
	$ 529,600	$ 148,513	$ 313,654	$ 991,767 [4]

4. Costs would be reduced by $126,000 if an Endowment Grant is approved for the Sonoma County Resource Conservation District and by $10,000 if the Digital mapping proposal from USGS is funded by Calfed.

wet-budtable)

Petaluma Watershed
Model Restoration and Habitat Management Program

TABLE IV-2

MONITORING, EDUCATION AND HABITAT MANAGMENT PROGRAM
ANNUAL OPERATIONS AND MANAGEMENT BUDGET

Questa Engineering Professional Services Contract								
Bi-Annual Inspections and Site Assessment		2 /year	$2,560 /insp.	$ 5,120	5,120			
Annual Report/Action Plan Professional Services		24 hrs/year	$80 /hr.	1,920	1,920			
Volunteer Program Coordinator Professional Services		16 hrs/year	$80 /hr.	1,280	1,280			
Landscape Subcontractor Maintenance Services Crew of 4 @ 5 reaches		1,600 hrs/year	$15 /hr.	24,000	7,200	16,800	City of Petaluma LAD/Developer Contributions	
Subtotal				*$ 32,320*	*$ 15,520*	*$ 16,800*		
Envirotech Operating Services Professional Services Contract							Questa Engineering Budget	
Water Quality Sampling Collection @ 4 sites 2 Techs x 2hrs. (Labor)		40 hrs.	$26 /hr.	1,040		1,040	EOS : Dissolved Oxygen. Turbidity, Ph, streamflo	
Water Quality Laboratory Services 10 parameters/site x 4 sites		$175 /site	4 /year	2,800		2,800	Coiform, Alkalinity. Hardness, Salinity, TSS, Temp	
Subtotal				*$ 3,840*	*$ -*	*$ 3,840*		
Sonoma State Universisty Professional Services Contract								
GIS Mapping Services - Geography Dept		80 hrs/year	$12 /hr	960	960		SSU Mapping Budget	
S.F. Estuary Institute Professional Services Contract								
Assessment/Data Analysis & Training		allowance		10,000	10,000		S.F. Estuary Institute Budget	
City of Petaluma Project Management & Administration		20% of contract total		9,424		9,424	City of Petaluma Planning Department	
City of Petaluma Maintenance Crew & Oversight		180 hrs/year	$45 /hr.	8,100		8,100	City of Petaluma Parks & Recreation Dept.	
Sonoma County Water Agency Technical & Maintenance Services		320 hours/y	$45 /hr.	14,400		14,400	Sonoma County Water Agency	
Resource Conservation District Technical & Field Review Services		60 hours/y	$45 /hr.	2,700		2,700	Resource Conservation District	
Department of Fish & GameTechnical & Field Review Services		60 hours/y	$45 /hr.	2,700		2,700	Dept. of Fish & Game	
Subtotal Annual Cost of Professional Services				**$ 84,444**	**$ 26,480**	**$ 57,964**		
Volunteer Program Services Monitoring & Maintenance Labor		1 annually						
Americorps Watershed Project - Maintenance Labor	20 labo	15 hrs/pers	$15 /year	4,800		4,800	Americorps Watershed Project	
Sonoma State University Environmenatal Studies Dept.	20 stu	32 hrs/year	$10 /year	6,400		6,400	SSU Environmenatal Studies Dept.	
Casa Grande High School -United Anglers	20 stu	32 hrs/year	$7 /year	4,480		4,480	Casa Grande High School -United Angl	
Adopt-A-Watershed Elementary Schools	60 stu	16 hrs/year	$7 /year	6,720		6,720	Adopt-A-Watershed Elementary Schoo	
Subtotal Annual Cost of Volunteer Labor				**$ 22,400**	**$ -**	**$ 22,400**		
TOTAL ANNUAL OPERATIONS AND MANAGEMENT BUDGET				**$ 106,844**	**$ 26,480**	**$ 80,364**		

ENDOWMENT FUNDS NEEDED @	**5% capitization rate**	***$ 529,600***

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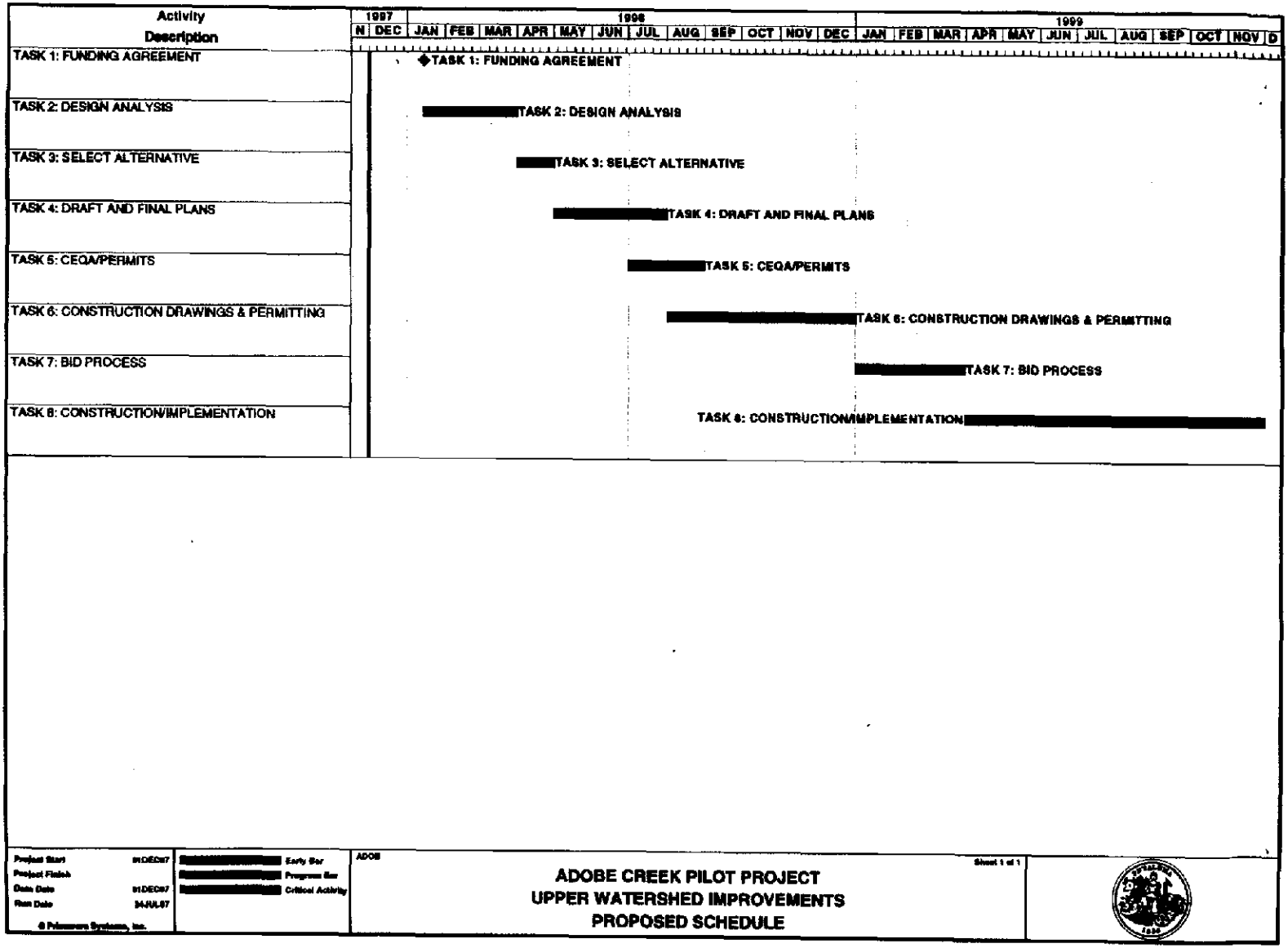

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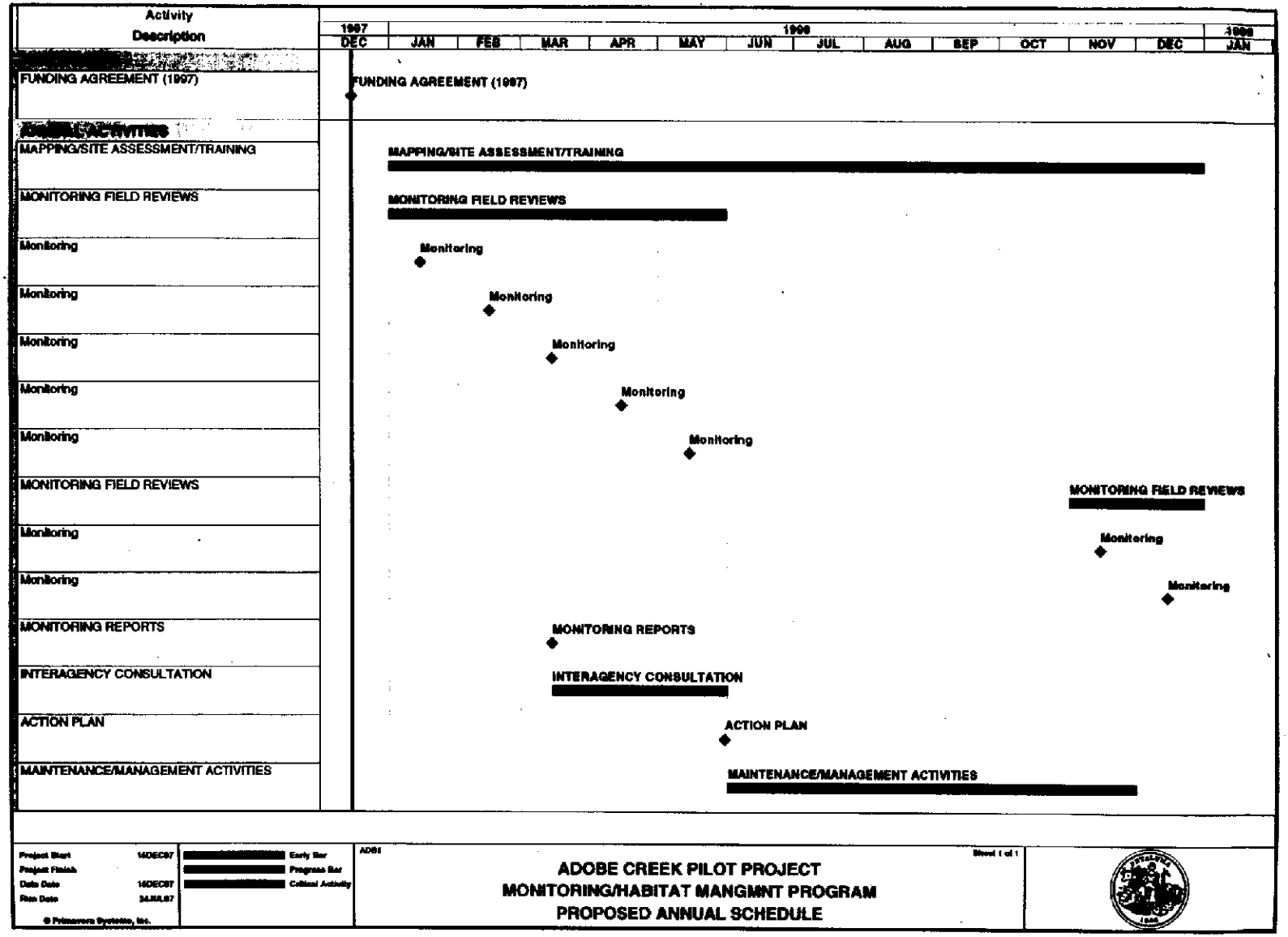

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SECTION V
APPLICANT'S QUALIFICATIONS

"We must see nature as a community to which we belong, rather than a community belonging to us."

Aldo Leopold
A Sand County Almanac

V. APPLICANT QUALIFICATIONS

City of Petaluma/Principal Grant Contractor/Applicant. The City of Petaluma has worked diligently on planning for restoration of the Petaluma River and tributary watersheds and has a proven track record of success on many restoration projects. Our experience in successful mitigation and restoration projects is illustrated in the attached Table V-1 which lists the many projects that have been completed or are underway. The City's approach involves development of a project team with the skills, expertise, knowledge and experience to bring a project from conceptual planning through environmental review, site acquisition, design and construction as well as long term maintenance and management. The City's interdepartmental project team is complimented by outside agency support and consultant contract services where appropriate to provide a multi-disciplined team. The Project Team and roles of each participant are illustrated in V-1. As a local government agency, the City has extensive experience with right-of-way procedures for site acquisition and bid procedures for construction projects. The City of Petaluma also has extensive human resources available in an actively involved community of well qualified volunteers as described in Figure V-2.

Project management, grant administration and interagency coordination will be coordinated through the City's Planning Department with Jennifer Barrett, Senior Planner as the project manager. Jennifer Barrett has a proven track record of success in planning, environmental review, permitting and project management for the City's capital improvement program. Her recent accomplishments include completion of the Facilities Plan for the Wastewater Facilities Project, Petaluma Marsh Enhancement Project, Adobe Creek Restoration Project, Biological Mitigation Plan for the Rainier Interchange, and Lakeville Highway Wetlands Mitigation Project.

Technical assistance, plan review and bid procedures will be handled through the City's Engineering Department by Craig Spaulding, Associate Civil Engineer. Craig Spaulding has extensive experience in plan checking and design with particular expertise in hydrologic analysis and grading/earthwork.

Endowment fund investments will be managed by David Spilman, the Finance Director. Financial Reporting, contract payments and grant reimbursement requests will be managed through the City's Finance Department by Paula Corwyn, Controller. The Finance Department has managed numerous state and federal grants and has received numerous awards for excellence in financial reporting from both the Government Finance Officers Association and the California Society of Municipal Finance Officers.

Agency Partners. Interagency support will be provided by: (1) Department of Fish and Game - Bill Cox, Fisheries Biologist; (2) Sonoma County Water Agency - Sean White, Fisheries Biologist/Supervisor; Bill Stevens, Maintenance Supervisor; and, Brad Olsen, Coordinator of the Americorps Watershed Program; and, (3) Southern Sonoma County Resource Conservation District - Robert Strand, Resource Specialist; Paul Sheffer, Agricultural Engineering Technician.

Educational Support. Josh Collins of the S.F. Estuary Institute will provide training and assistance in development of the Watershed Science Project and long-term monitoring program and ongoing support for providing data analysis and management recommendations. Jean Merriman, Biology Professor, Steve Norwick, Geology Professor, and Brian Baker, Geography Professor at

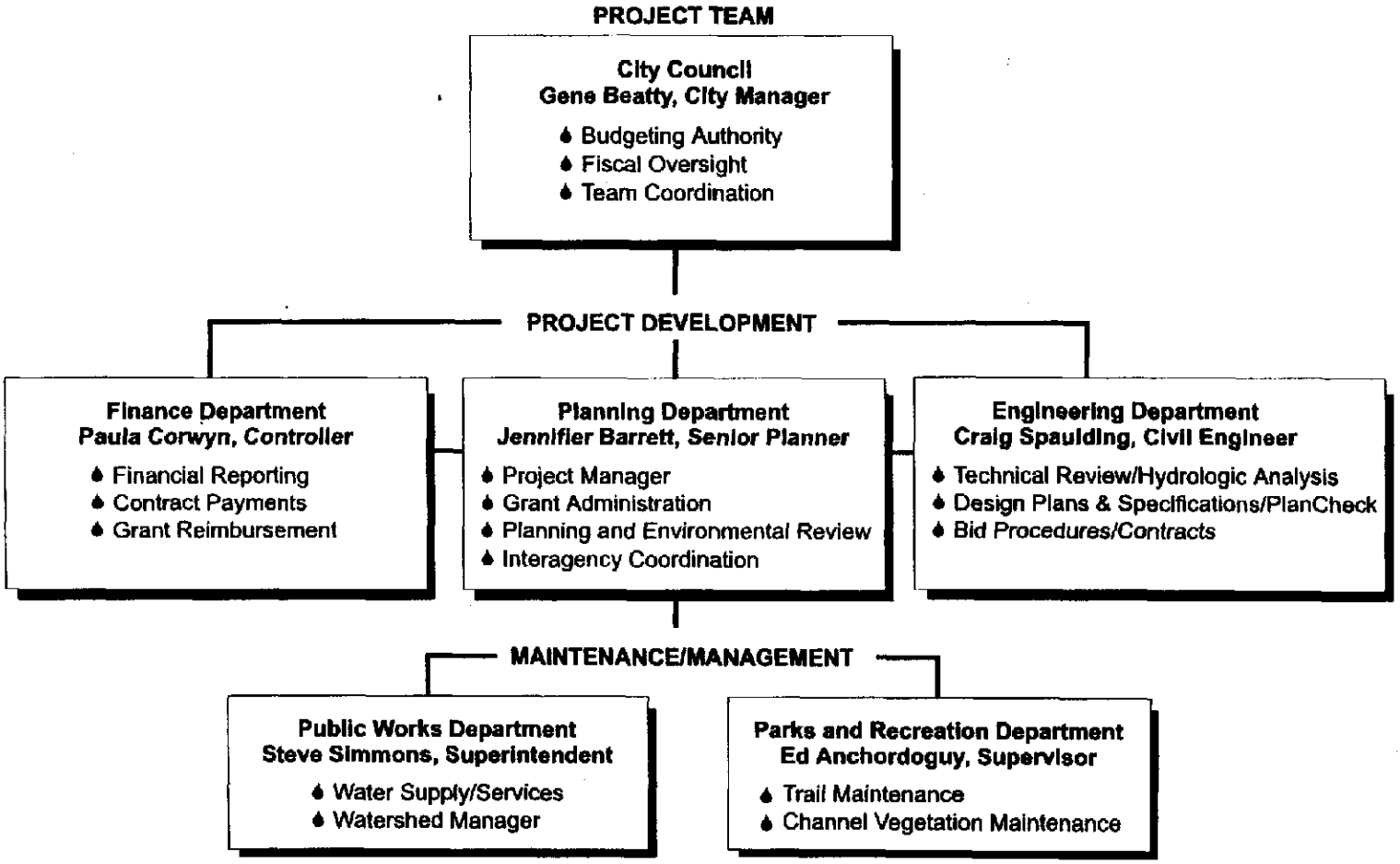
Sonoma State University will provide technical support for the Watershed Science Project data collection and mapping effort.

Technical Support. Jeff Peters of Questa Engineering is the co-author of the Restoration Design and Management Guidelines and the design engineer, construction manager and monitoring consultant for the Adobe Creek Restoration Project and would provide design and construction management services for the upper watershed study. Jeff Peters will also provide long-term monitoring services in conjunction with Sam McGinness, fisheries biologist. Envirotech Operating Services (EOS) is the City's private contract operator for the Wastewater Treatment Plant and will provide volunteer assistance for water quality sample collection and laboratory services for analysis as described in the attached letter of support.

Volunteer Support. Brad Olsen, Sonoma County Water Agency is the volunteer coordinator for the Americorps Watershed Program. Tom Furer, Science Teacher at Casa Grande High School is the volunteer coordinator for the United Anglers, and the "instigator" of the local Adobe Creek restoration effort. Diane DiMarco is the local teacher coordinator for the Adopt-A-Watershed Program with local elementary schools. Don Waxman, Petaluma Tree People is the local coordinator for the volunteer program and co-author of the Restoration Design and Management Guidelines.

FIGURE V-1

City of Petaluma
Petaluma Watershed
Model Restoration and Management Program



7364-84 Project Team

I-003395

TABLE V-1

City of Petaluma

PETALUMA RIVER WATERSHED MODEL RESTORATION PROGRAM

SUMMARY OF PROJECTS COMPLETED OR UNDERWAY

PROJECT PHASE/TYPE	STATUS	ESTIMATED COST	FUNDING SPONSOR
PLANNING AND ENVIRONMENTAL REVIEW			
Petaluma River Marsh Restoration (Tidal Reaches)			
Petaluma Marsh Enhancement Plan	Approved December 1992	$ 30,000	Coastal Conservancy
Petaluma River Riparian and Aquatic Habitat Restoration			
Petaluma River Access and Enhancement Plan	Approved May 1996	300,000	Coastal Conservancy
Petaluma River Upper Watershed Restoration			
Restoration Design and Management Guidelines for the Petaluma River Watershed	Approved July 1996	58,000	Dept. of Water Resources
Petaluma Watershed Planning Program (Resource Conservation District 205j grant)	Underway 1997-00	194,000	*Resource Conservation District*
Ellis Creek Enhancement Plan	Approved June 1996	30,000	City of Petaluma
Adobe Creek Riparian and Aquatic Habitat Restoration			
Lafferty Access and Management Plan (Adobe Creek Headwaters)	Underway 1997-98	78,000	City of Petaluma
Adobe Creek Restoration Plan and Management Program	Approved July 1996	18,000	Private Contribution (Questa Engineering)
SITE ACQUISITIONS			
Petaluma River Marsh Restoration			
Oxidation Pond Site 46 acres dedication to tidal marsh restoration	Acquired 1972	300,000	City of Petaluma
Dredge Disposal Site 46 acres dedication to tidal marsh restoration	Acquired 1970	200,000	City of Petaluma
Petaluma Marina (7 acres former Schollenberger Park)	Acquired 1989	1,050,000	County of Sonoma Dedication
Alman Marsh Acquisition of 20 acres tidal marsh	Acquired 1997	64,000	*So. Co. Open Space District*
Petaluma River Riparian and Aquatic Habitat Restoration			
McNear Peninsula 20 acres	Acquired 1997	170,000	So. Co. Open Space District
Petaluma River Greenway Block Grant Acquisitions for Upper Reaches	Underway 1997-03	1,000,000	So. Co. Water Agency/So.Co. Open Space District
Petaluma Demonstration Wetlands Site (Grayview Farms)	Underway 1997-98	1,400,000	City of Petaluma/So. Co. Open Space District
Petaluma River Corona Reach Flood Easement *20 acres*	Acquired 1979	800,000	Developer Contribution
Petaluma River Vista site acquisition	Acquired 1997	80,000	City of Petaluma/TEA Grant
Adobe Creek Riparian and Aquatic Habitat Restoration			
Adobe Creek Upper Reach Cross Creek Dedication 40 acres	Acquired 1997	280,000	Developer Contribution
Adobe Creek Lower Reach Lakeville Business Park Dedication			
Upper Reach Restoration (Cross Creek Restoration and Mitigation Project)			
IMPLEMENTATION/CONSTRUCTION			
Adobe Creek Restoration Project			
Adobe Creek Fish Hatchery	Completed 1992	500,000	United Anglers/Private Donations
Lower Reach Restoration (Lakeville Highway Mitigation Project)	Completed 1995	225,000	City of Petaluma
Middle Reach Enhancement *(downstream of McDowell Blvd.)*	Completed 1995	22,000	Petaluma Tree People
Middle Reach Demonstration Restoration Project (Phase II)	Under Construction 1997	338,000	Environmental Enhancement Mitigation Program
Middle Reach Enhancement (upstream of Sartori Drive)	Completed 1995	10,000	United Anglers
Middle Reach Restoration (Fairway Meadows Mitigation Project)	Completed 1989	130,000	Developer Contribution
Upper Reach Restoration (Adobe Creek Golf Course Mitigation Project)	Completed 1995	260,000	Developer Contribution
Upper Reach Restoration (Cross Creek Restoration and Mitigation Project)	In Design for Const. 1998	250,000	Developer Contribution
Adobe Road Fish Ladder (County of Sonoma)	In Design for Const. 1998	40,000	United Anglers/NFWS
Petaluma Marsh Enhancement Project			
Oxidation Ponds Marsh Mitigation Project (45 acres tidal marsh restoration)	Completed 1972	40,000	City of Petaluma
Dredge Disposal Site Mitigation Project (46 acres tidal marsh restoration)	Completed 1970	40,000	City of Petaluma
Petaluma Marina Excavation and Marsh Enhancement (7-acre basin)	Completed 1987	1,000,000	City of Petaluma
Casa Grande Landfill Closure & Marsh Enhancement (10 acre tidal marsh/9 ac. upland)	Completed 1994	440,000	City of Petaluma
Schollenberger Park Lower Adobe Creek Fencing, Trailhead and Pathway Improvements	Completed 1995	150,000	City of Petaluma/State Grant
Petaluma River Riparian and Aquatic Habitat Restoration			
Payran Reach Flood Control Project Mitigation	In Design for Const. 1998	260,000	U.S. Army Corps of Engineers
Willow Brook Middle & Upper Reach Flood Terrace and Riparian Restoration	In Design for Const. 1998	350,000	Redwood Business Park Contribution
Corona Reach Riparian Restoration (Rainier Ave Mitigation 10 ac. riparian 2 acres wetland)	In Design for Const. 1999	1,500,000	*City of Petaluma*
Corona Reach Factory Outlet Wetland Mitigation	Completed 1994	190,000	Developer Contribution
Corona Reach Factory Outlet Riparian Restoration	Completed 1994	125,000	Developer Contribution
TOTAL PROJECT COSTS ESTIMATED		**$ 11,910,000**	

funding)7/25/97

SECTION VI
COMPLIANCE

*"It is better to be half right on time,
than totally right too late."*

Socrates

VI. COMPLIANCE WITH STANDARD TERMS AND CONDITIONS

The City accepts the terms and conditions as stated in the Request for Proposals and will provide the appropriate forms for submittal with the grant agreement as noted in Table D-1. The non-discrimination form is attached with this grant proposal as specified in the Request for Proposals.

c:\grant\adobe

NONDISCRIMINATION COMPLIANCE STATEMENT

Company Name: City of Petaluma

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

Official's Name: Gene P. Beatty

Date Executed: 7-23-97 **Executed in the County of Sonoma**

Prospective Contractor's Signature:

Prospective Contractor's Title: City Manager

Prospective Contractor's Legal Business Name: City of Petaluma

compliance / plan83

SECTION VII
ATTACHMENTS

PARTNERSHIP LETTERS AND LETTERS OF SUPPORT

"I truly believe from what I have seen,
that Sonoma County is the chosen spot
of all of the earth, as far as nature is concerned."

Luther Burbank

Resolution No. 97-166 N.C.S.
of the City of Petaluma, California

APPROVING THE APPLICATION FOR GRANT FUNDS FROM CALFED FOR THE ADOBE CREEK RESTORATION PROJECT AND PETALUMA MARSH ENHANCEMENT PROJECT AND OTHER RESTORATION ACTIVITIES IN THE PETALUMA RIVER WATERSHED

WHEREAS, an interagency agreement was signed by various state and federal agencies to resolve problems in the Bay-Delta system;

WHEREAS, Category III of the funding agreement provides for restoration of habitat to implement the long-range plan for the Bay-Delta system;

WHEREAS, the voters of the State of California have enacted Proposition 204 which provides state funds for grants under the agreement to local, state and federal agencies and nonprofit entities for projects to enhance and restore habitats for targeted species;

WHEREAS, CALFED is the interagency association designated to establish procedures and criteria for reviewing grant proposals and selecting grant recipients;

WHEREAS, said procedures and criteria established by CALFED require the applicant to provide a resolution authorizing such applications;

WHEREAS, if approved, the City will enter into an agreement with CALFED or a designated agency to carry out the restoration project(s);

WHEREAS, the City of Petaluma in conjunction with the Coastal Conservancy and other responsible agencies has developed restoration plans for the Petaluma River and the Petaluma Marsh which are significant resource areas in the Bay Delta system that are within the City of Petaluma's jurisdiction;

SONOMA COUNTY WATER AGENCY

July 22, 1997

CALFED Bay-Delta Program
1416 Ninth Street, Suite 1155
Sacramento, CA 958145

Regarding: City of Petaluma Restoration Projects

The Sonoma County Water Agency has demonstrated support for watershed restoration in the Petaluma area, and provides an active hydraulic maintenance program throughout the area. In keeping with this commitment, the Agency fully supports the further development of our partnerships with the City of Petaluma through our participation on the interagency team for the Adobe Creek Pilot Project and Petaluma River Greenway.

In these projects, the Sonoma County Water Agency will participate in the interagency team reviewing annual monitoring reports, and conducting annual field reviews. The Agency will also provide technical assistance in reviewing hydrologic modeling studies as well as in-kind contributions for maintenance activities. For the Petaluma River Greenway, the Agency has pledged $500,000 in block grant funds from Flood Control Zone IIA for site acquisition. This commitment will be provided at $100,000 per year for the next five years.

Thank you for the opportunity to express Sonoma County Water Agency support for the Adobe Creek Pilot Project and the Petaluma River Greenway Project. We are pleased to enter into this exciting partnership with the City of Petaluma for the restoration of these important watershed components.

Sincerely,

William Stephens
Water Agency Operations Coordinator

P.O. Box 11628 - Santa Rosa, CA 95406 - 2150 W. College Avenue - Santa Rosa, CA 95401 - (707) 526-5370 - Fax (707) 544-6123

Jennifer Barrett

RECEIVED
JUN 17 1997
ASST. CITY MANAGER

June 13, 1997

SONOMA COUNTY
AGRICULTURAL
PRESERVATION
& OPEN SPACE
DISTRICT

747 Mendocino Avenue
Suite 100
Santa Rosa, CA
95401-4850
(707) 524-7360
Fax: (707) 524-7370

David Wm. Hansen
General Manager

Mr. Warren Salmons
Assistant City Manager
City of Petaluma
P.O. Box 61
Petaluma, CA 94953

RECEIVED
JUN 18 1997
PLANNING / BUILDING

Dear Mr. Salmons:

The Sonoma County Agricultural Preservation and Open Space District is pleased to inform you that the City of Petaluma's proposed Petaluma River Marsh and Wastewater Reclamation project and Petaluma River Greenway project have both been recommended for funding under the District's Competitive Matching Grant Program. A total of six (6) proposals from four (4) cities were submitted and evaluated in accordance with established grant criteria. The following four proposals were selected for potential funding and were determined to be consistent with the Open Space Authority's Expenditure Plan on May 29, 1997:

Nathanson Creek Preserve and Trailway Corridor (Applicant: City of Sonoma) - Preservation of a 3/4 mile reach of Nathanson Creek riparian corridor through acquisition of interests in lands in fee or through conservation easements adjacent to Nathanson Creek City Park; development of a multi-use trail and pedestrian/bicycle access to adjacent neighborhoods; and creation of an ecological study area for students.

Cloverdale River Park (Applicant: City of Cloverdale) - City of Cloverdale and Sonoma County Regional Parks joint project to create a 68.5-acre River Park with one mile of Russian River frontage; acquisition of interests in lands adjacent to Cloverdale River Park; restoration and enhancement of natural communities; public access to the Russian River and construction of a multi-use trail connecting County and City-owned lands.

Petaluma River Marsh & Wastewater Reclamation (Applicant: City of Petaluma) - Acquisition of a 150-acre portion of two contiguous properties for creation and enhancement of a freshwater and brackish marsh habitat utilizing highly treated effluent from the City's proposed wastewater treatment facility.

Petaluma River Greenway (Applicant: City of Petaluma) - Acquisition of interests in fee or through conservation easements along the Corona and Denman reaches of the Petaluma River to create a greenway and trail; preserve the floodplain; and enhance riparian, oak woodland and grassland habitats consistent with the Petaluma River Access and Enhancement Plan.

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Southern Sonoma County Resource Conservation District
1301 Redwood Way, Suite 170 - Petaluma, California 94954
(707) 794-1242 - (707) 794-7902 FAX

July 22, 1997

CALFED Bay-Delta Program
1416 Ninth Street, Suite 1155
Sacramanto, California 95814

Dear CALFED Technical review panel,

Southern Sonoma County Resource Conservation District (District) is pleased to be working in partnership with the City of Petaluma (City). Our combined efforts in the Petaluma River watershed will expedite restoration and enhancement of priority instream and shaded riverine habitats currently supporting steelhead trout and other native species.

The City's comprehensive restoration project for Adobe Creek will complement the current planning effort the District has initiated for the entire Petaluma River watershed including headwater areas of the City's projects.

The District strongly supports the City of Petaluma's Adobe Creek Pilot Project proposal and hopes this synergistic effort to enhance and restore critical wildlife habitat and provide outreach becomes a model for other communities to take action.

Sincerely,

Maxine Durney
Board of Directors

San Francisco Estuary Institute

190 Richmond Field Station
1325 South 46th Street
Richmond, California 94804
Office (510) 231-9539
Fax (510) 231-9414

Memorandum

To: North Bay Watershed CalFed Interests: Proposal Authors
Jennifer Barret (Adobe Creek)
fx (707) 778 4498
Robert Rand (Sonoma Creek)
fx (707) 794 7902

From: Josh Collins, SFEI
Re: SFEI cost estimates for Watershed Science
Date: 15 July 1997

Please find attached a simple description of the SFEI technical role and associated SFEI costs for helping to start watershed science in local watershed. As noted in the narrative, these estimates are rather coarse, due to their dependence upon a number of assumptions about your previous work and available local materials and expertise

The outline of tasks reflects Phase 1 of the Bay Area Watersheds Science Plan. All of the tasks listed are regarded as essential. Tasks A1, A2, B1, and B2 could be substantially modified to eliminate GIS. A base map will still be required, but it might consist of an existing suitable local map or standard USGS quadrangles, outside of a GIS, if costs so dictate. Most watershed scientists regard GIS as an essential tool. It could be developed later, but retrofitting data to a GIS has proven to be more expensive.

The estimated costs for base map production in a GIS depend upon using USGS products called DOQQ's (Digital Ortho Quarter Quadrangles) to rectify local aerial photography. However, the DOQQ's have not been completed for your watersheds. The USGS Mapping Division in Menlo Park is submitting a proposal to CalFed to complete the DOQQ's for all of the North Bay. The USGS and I are drafting language that can be used in our proposals, and theirs, to cross-reference with regard to these particular costs. The language will demonstrate coordination among proposals and prevent any suggestion of "double dipping" by the USGS or SFEI. I will provide this language later this week.

Please also note that the cost estimates only pertain to Phase 1 watershed science. Phase 1 approximately corresponds to one year of work. SFEI costs for subsequent and continuing consultation with local partners for filed training, QA/QC, data transfer, and help with interpretation of data depend upon local needs. I suggest that for the purpose of CalFed proposals, these costs should be estimated by you, but should not exceed about $20K per year.

Implementation of the Watersheds Science Plan: General Estimates for SFEI Starting Costs

Background

SFEI recognizes that it does not have to be directly involved in all technical aspects of implementation of the Bay Area Watersheds Science Plan. For example, Phase 1 involves much office work to compile existing reports and maps that is best accomplished by local interests.

This invites some estimation of what technical role SFEI might usually have to implement the plan in a local watershed. Some of the answer is provided within the Plan (see Appendix II: More about the role of SFEI). Beyond these general statements, the technical role of SFEI depends upon the capabilities of local partners. By making some assumptions about what local interests are able to do, the role of SFEI can be further described.

These estimates of the cost for SFEI to help implement the Watershed Science Plan are based upon the following assumptions.

- There is adequate local computing capability to receive the EcoAtlas (Phase 1 part A).
- There is aerial photography for constructing a base map (Phase 1 Part A).
- There is local ability to compile existing information on cultural and Physical and Biological Characteristics (Phase 1 Parts B and C).

Based upon these assumptions, it might be inferred that, *for initial implementation of the Watersheds Science Plan in a local watershed (Phase 1)*, SFEI will mainly be involved in EcoAtlas transfer, base map construction (using available photography), and transfer of protocols for the collection and analysis of hydrologic and geomorphic data, including historical information. Subsequent and ongoing involvement by SFEI might relate to facilitating the transfer of protocols for ecological and water quality measures and internet data exchange, helping to interpret the results, and designing a long-term monitoring plan.

Based upon the assumptions listed above, the expected role of SFEI can be translated into the following four objectives.

Typical SFEI Objectives for Phase 1

A. Develop a base map in the EcoAtlas to visualize study findings and to serve as a geographic directory to data and data sources.

B. Provide support for data quality assurance and control and data management.

C. Provide training for hydro-geomorphic profiling of the selected watershed, and initiate such a profile.

D. Help interpret the findings in the context of flooding, pollution control, and natural resource conservation.

Typical Tasks and Deliverables for Objectives A-D

A.1 Transfer the existing EcoAtlas to one or more appropriate local partners. EcoAtlas would include existing historical and modern views of the alluvial plain, existing DEM (USGS Digital Elevation Maps) and aerial photo coverages, and supporting documentation. Cost will depend upon computing capabilities among local partners. Deliverables would be the EcoAtlas for extension into a local watershed.

A.2 Scan, rectify, and mosaic suitable aerial photography (minimum operational scale 1:2000). Deliverable would be a photographic base map for use in the field and office.

B.1 Develop GIS file structure and transfer protocols. Cost depends upon number of partners. Deliverable would be a set of technical and operational protocols for data sharing among all watershed interests.

B.2 Develop Internet or other file transfer links between SFEI and partners. Ideally, each partner should be able to use EcoAtlas to access data, data sources, and base map images. Cost depends upon existing capabilities of partners. Deliverable would be a set of tools to enable data sharing among all watershed interests, following the protocols developed in Task B.1.

C.1 Initiate an historical ecology project to describe the relative influences of natural history and human history on changes in watershed conditions. This will involve the identification of one or more local people who will receive project guidelines and training from SFEI. Cost involves consultation by SFEI historical ecology staff. Deliverable would be a community-based project to describe local historical conditions for three time periods (mission, agriculture, and urban), as baselines for assessing change in watershed form and function.

C.2 Conduct watershed reconnaissance to describe hydro-geomorphic conditions and processes.

Subtask C.2.1: Develop protocols for assessing bank condition, thalweg profile, hillside mass wasting, and basic hydrological summaries (stage height, flow, flow-frequency curves, runoff coefficients, etc.), prior to new data collection. Cost depends upon suitability of existing protocols, and availability of volunteers or staff of local agencies for field work. Deliverable would be a quality control plan.

Subtask C.2.2: Conduct initial field reconnaissance and subsequent field surveys, including survey of bank condition. Cost depends upon length of creek, size of watershed, number of people to be trained (3 maximum), and availability of volunteers or staff of local agencies for field work. Deliverable would be a set of maps in the EcoAtlas of the condition of left and right banks, point sources of flow input and diversion, culverts and other man-made control structures, distribution of bed-rock channel controls, longitudinal profiles of bankfull height and terraces, overview of relative importance of three major sediment sources (channels, banks, and hillsides including new construction), distribution of perennial flow and perennial pools, distribution of sediment sources and transport and storage reaches.

Subtask C.2.3: Establish reference reaches. Cost depends upon length and complexity of creek hydro-geomorphology and size of watershed. Deliverable would be a set of monumented reaches for long-term monitoring of flow and channel condition.

Subtask C.2.4: Map hillslope mass wasting. Cost depends upon amount of mass wasting, and number of people to be trained (3 maximum). Deliverable would be a set of maps in the EcoAtlas of landslides and debris shoots apparent on the base map and affecting sediment supply to the creek.

Subtask C.2.5: Summarize existing hydrology data per tributary and mainstem systems. Cost depends upon amount and quality of existing data and availability of local expertise. There will be little or no costs for streams that are not gauged (where there are no local data). There will be higher costs for streams with abundant data and no expertise. Deliverables would include rating curves, plots of at-a-station hydraulic geometry, plots of daily rainfall, plots of storm frequency, flood-frequency curves, flow duration curves, plots of bankfull discharge, and runoff coefficients.

D. Assess the watershed based on the information assembled. Cost depends upon availability of local expertise and historical information. Deliverables would be a paper report with supporting GIS (the EcoAtlas) summarizing the existing conditions and changes in the creek bed, banks, and hillsides, with an emphasis on water and sediment supplies, and in the context of flood management, pollution control, and the conservation of natural resources.

Approximate Typical Costs for 10 square-mile Watershed

The following estimates of SFEI costs to help start watershed science in a local watershed depend upon the assumptions listed above on page 1, and are further based upon the SFEI experience in watershed assessment and the transfer of related science and technology to local partners. The actual cost could be less, but are not likely to be greater than the estimates. Dollar amounts include products plus training.

TASK	*Estimate*
A.1	2K
A.2	4K
B.1	5K
B.2	7K
C.1	7K
C.2.1	3K
C.2.2	35K
C.2.3	2K
C.2.4	10K
C.2.5	5K
D	10K
Total	**90K**

end

I-003409

7/16/97

SONOMA STATE UNIVERSITY

1801 East Cotati Avenue
Rohnert Park, California 94928-3609

Department of Environmental Studies and Planning
707 664-2306

CALFED Bay-Delta Program
1416 Ninth Street, Suite 1155
Sacramento CA 95815

Dear Sir or Madam,

Over the years, the faculty of the Department of Environmental Studies and Planning at Sonoma State University has had numerous contacts with the staff of the City of Petaluma concerning many environmental matters, especially related to water quality. Many students have worked as interns, and a number of our graduates are employees of various city departments and in the waste water treatment plant. We also have a number of graduates who are employed by the Sonoma Country Water Agency which supervises dredging the Petaluma River.

I teach the course on soil science and also the course on water pollution abatement and I regularly use the Petaluma watershed for field trips with my classes. It is a good place to train students about the processes of soil erosion, geomorphology and hydrology because it is large enough to be interesting and small enough to be manageable.

I am very interested in participating in the educational and monitoring aspects of the Petaluma River Plan. I have visited the Adobe Creek Restoration Project which is an excellent site for educational activities because it is so compact and yet contains both rural and urban water quality and hydrology problems, it has both residual and depositional soils, and both erosional and alluvial landforms.

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I-003410

I would very much like to represent Sonoma State University, and especially my department as a partner in the program which is proposed by Ms. Barrett of the City of Petaluma. I am prepared to consult with her concerning erosion control in the headwaters and habitat restoration along the waterways which are tributary to the Petaluma marshlands, especially Adobe Creek. I am interested in organizing students to assist in the remedial work which must be done in the watershed.

I would like to assist in the long term monitoring to measure the success of the restoration of the watershed and marsh. I also teach the computer modeling course, and I would like to organize a student team to construct a working model of the hydrology and water quality. I am not a biological ecologist, but I am prepared to find students and faculty from the life sciences who can lend their skills to the biological monitoring which must be done to assure that the alterations which we intend to carry out really are a benefit to the natural processes in the Petaluma River and Marsh.

Sincerely yours,

Stephen A. Norwick

Dr. Stephen A. Norwick
Professor of Geology
In the department of Environmental Studies and Planning

I-003411

U.S.FILTER

U.S. FILTER/EOS
950 HOPPER STREET
PETALUMA, CA 94952

TELEPHONE 707-762-5892
FACSIMILE 707-762-5318

07-16-97

To: Jennifer Barrett

From: Chris McAuliffe

Subject: **CALFED Proposal Information**

US Filter is proud to participate in this project. We will donate labor for sample collection and visual observation along with certain laboratory analysis of the samples. Since all analysis has yet to be determined I am unable to commit to all analysis and associated cost that may be required or desired. Please find attached, example cost estimates of laboratory analysis from a local laboratory.

US Filter will at a minimum provide the following:

Labor to collect samples from four sites along Adobe Creek four times per year. We believe it will take approximately 40 hours the first year due to cross-training and Standard Operating Procedure development. This is a $1,040.00 value.

Parameters for in-house analysis:
Turbidity, TSS, pH, Dissolved Oxygen, Flow, Salinity/conductivity, Temperature, Coliform(total), Alkalinity, Hardness

US Filter in-house laboratory analysis cost estimate:
$175/site * 4 sites * 4 times/year = $2,800.00

There may be other parameters suggested for analysis that will result in additional cost due to the need to use an outside laboratory. I suggest we talk to the lab about supplying this analysis as a donation.

Other laboratory analysis parameters:
Ammonia, nitrate, nitrite, phosphate, Coliform(fecal)

Outside laboratory cost estimate:
$120/site *4 sites * 4 times/year = $1,920.00

If you require additional information, please contact me.

Chris McAuliffe

The Watershed Project

an AmeriCorps Program

CALFED Bay-Delta Program
1416 Ninth Street, Suite 1155
Sacramento, CA 95814

We look forward to working with the coalition of agencies and organizations that are collaborating to implement higher and better practices and projects for our environment, our community.

We will continue to work diligently on forwarding the success of environmental education in the Petaluma River Watershed, and truly look forward to implementing the restoration / planning efforts described.

Sincerely,

Brad Olsen

Regional Coordinator
The Watershed Project

California Regional Environmental Education Coordinator
California Department of Education

Chief Financial Officer
The Foundation for the Advancement of Environmental Education

I —0 0 3 4 1 3

I-003413

Sonoma State University
Geographic Information Center
Rohnert Park, CA 94928
(707) 664-2183 -- Fax (707) 664-3920

July 22, 1997

CALFED Bay-Delta Program
1416 Ninth Street, Suite 1155
Sacramento, CA 95815

Dear Sir/Madam:

We are very interested in participating as a partner in the City of Petaluma's watershed restoration planning project. The Geographic Information Center at Sonoma State University would assist with the mapping and analysis portions of the project.

While we would need to work out specific details of our work in the project, I can give a general outline of the tasks we would likely engage in and approximate time required for such tasks. I have listed only tasks that would involve digitizing, compiling, analysis and output of watershed data; tasks involving data collection would be separate activities not covered here.

Task	Hours	Cost
Import data layers from existing GIS databases (transportation, hydrography, political boundaries, census demographics, digital elevation model, city land parcels)	100	$2,000
Digitize maps compiled by project: geology, land use, storm drains, areas with city sewer and water service, flood zones, vegetation, landslides, watersheds, fires, rural land parcels, septic tanks, private wells, and wildlife habitat, plus historical data on above layers	300	$6,000
Analysis of data: demographics of sub-watersheds, area calculations (watersheds, riparian zones, storm drains, landslides), road density; historical change in land use and drainages	200	$4,000

I-003414

Output: plot maps of each layer and analysis variable	50	$1,000
Administration	100	$4,000
Materials (paper, printer ink, backup tape, etc.)		$300
Overhead (32%)		$5,500
Total		$22,800

The GIC is equipped with hardware and software for such a project, including tablet digitizers, scanner, color printer, large-format color plotter, in addition to major geographic information systems (GIS) software packages including Arc/Info, ArcView, and Erdas. Much of the work done by our Center is by student interns with training in GIS, which allows us to give real-world job experience to students in a technologically advanced area.

Please contact me if you have any questions about our role in the watershed planning project.

Sincerely yours,

Bryan D. Baker
Director and Associate Professor of Geography

I-003415

LYNN WOOLSEY
6TH DISTRICT, CALIFORNIA

COMMITTEES:
BUDGET
ECONOMIC AND EDUCATIONAL OPPORTUNITIES

WASHINGTON OFFICE:
439 CANNON BUILDING
WASHINGTON, DC 20515-0506
TELEPHONE: (202) 225-5161

Congress of the United States

House of Representatives

Washington, DC 20515–0506

DISTRICT OFFICES:
1101 COLLEGE AVE., SUITE 200
SANTA ROSA, CA 95404
TELEPHONE: (707) 542-7182
FROM PETALUMA CALL:
(707) 795-1482

NORTHGATE BUILDING
1050 NORTHGATE DRIVE, SUITE 140
SAN RAFAEL, CA 94903
TELEPHONE: (415) 507-8554

INTERNET ADDRESS:
woolsey@hr.house.gov

July 23, 1997

RECEIVED
JUL 24 1997
PLANNING DEPARTMENT

CALFED Bay-Delta Program
1416 Ninth Street, Suite 1155
Sacramento, CA 95814

To Whom it May Concern:

I am writing to express my support for the City of Petaluma's proposal for funding from the CALFED Bay-Delta Program. Petaluma has already made outstanding achievements in their efforts at environmental restoration in the community.

As I understand it, funding from CALFED would allow the city to expand restoration projects for the Petaluma Marsh, Adobe Creek and upper reaches of the Petaluma River. Together, these projects would create a model watershed project for research and education. This model will be tied together by a watershed science and habitat management program focusing on Adobe Creek.

Thank you for your careful consideration of the City of Petaluma's application for funding. It is my sincere hope that Petaluma will receive the funding it needs to continue and expand its environmental preservation efforts for the community.

Sincerely,

Lynn Woolsey

Lynn Woolsey
Member of Congress

LW:tf

I —0 0 3 4 1 6

I-003416

Coastal Conservancy

April 28, 1997

Mr. David Hansen
General Manager
Sonoma County Agricultural Preservation
and Open Space District
415 Russell Avenue
Santa Rosa, CA 95403

Re: City of Petaluma Open Space Grant Proposals for Acquisition of the Petaluma River Greenway and Marsh Restoration Site

Dear Mr. Hansen:

I am writing to express enthusiastic support for the City of Petaluma's applications for grant funding to acquire greenway lands along the upper Petaluma River and to restore wetlands adjacent to the City's oxidation ponds.

The Conservancy is gratified to have been able to assist the City in preparing natural resource enhancement and public access plans for both the relatively urbanized upstream area and the more rural downstream wetlands. The City has been very successful in working with landowners, citizens and agencies in crafting detailed, feasible plans for protecting and improving river resources and in carrying out plan recommendations.

Implementation of the projects for which the City is requesting Agricultural Preservation and Open Space District funding would enable creation of a buffer for fish and wildlife habitat in the upstream area and restoration of wetlands and a migration corridor for the endangered saltmarsh harvest marsh near the oxidation ponds. Both of these undertakings are essential components of the plans for which the Conservancy provided funding.

We hope that the District will contribute to Petaluma River protection and restoration by providing the funding assistance requested by the City.

Sincerely,

Michael L. Fischer
Executive Officer

1330 Broadway, 11th Floor
Oakland, California 94612-2530
510-286-1015 Fax: 510-286-0470

SAN FRANCISCO BAY JOINT VENTURE
mailing address: Coastal Conservancy, 1330 Broadway, Suite 1100, Oakland, CA 94612
phone: 510-286-6767 fax: 510-286-0470

July 17, 1997

Kate Hansel
CALFED Bay-Delta Program
1416 Ninth St., Suite 1155
Sacramento, CA 95814

RE: City of Petaluma Category III Proposals for the Petaluma Marsh Restoration, Petaluma River Greenway and Adobe Creek Restoration Project

Dear Kate:

I am writing on behalf of the Management Board of the San Francisco Bay Joint Venture in support of the City of Petaluma's grant applications to acquire lands to create a greenway along the Petaluma River, to restore 150 acres of wetland habitat in the Petaluma Marsh and to restore the Adobe Creek Watershed.

As you know, the Joint Venture is a partnership of public agencies, environmental organizations, business representatives and agricultural interests working cooperatively to protect, restore and enhance all types of wetlands around the San Francisco Bay region. We have begun assisting with the completion of existing wetlands protection projects and developing new projects and have been working with the city of Petaluma on their projects.

The City of Petaluma has done an excellent job of implementing the Coastal Conservancy funded Petaluma Marsh Enhancement Plan and Petaluma River Access and Enhancement Plan. The Joint Venture strongly supports their work. The creation of a greenway along the upper reaches of the Petaluma River will create a buffer from urbanization and provide for habitat restoration as described by the River Plan. The proposed marsh restoration project near the City's oxidation ponds will create approximately 50 acres of salt marsh along the river as envisioned in the Marsh Plan. The City's work on Adobe Creek on behalf of fish and wildlife has helped bring back steelhead and salmon.

We support these proposals and encourage CALFED to consider them favorably. Thank you for your consideration.

Sincerely,

Nancy Schaefer
Coordinator

cc: Jennifer Barrett, City of Petaluma

Trout Unlimited of California

July 22, 1997

Mr. Lester Snow
Executive Director
CALFED Bay-Delta Program
1416 Ninth Street, Suite 1155
Sacramento, Ca. 95814

Re: City of Petaluma-Restoration Project:

Dear Mr. Snow:

Trout Unlimited is America's leading coldwater fisheries conservation organization dedicated to the protection and restoration of our trout and salmon resources and the watersheds that sustains those resources. We have over 1100 members in Marin and Sonoma Counties who voluntarily contribute their personal resources to aquatic habitat protection and restoration efforts.

I have reviewed the Petaluma Watershed Model restoration and Management Program with some of our local members and they are very supportive of the program. Not only will it benefit the riparian and aquatic habitat in the watershed, the program will greatly improve the water quality in the river and the San Pablo Bay and the Wildlife Refuge. As the San Pablo Bay is used by the outgoing migrating juvenile salmon and steelhead as a nursery area prior to their journey to the ocean the improved water quality will greatly enhance their survival .

As previously indicated, Trout Unlimited supports the above entailed program and looking forward to an improved Petaluma River watershed and improved water quality in San Pablo and San Francisco Bay.

Respectfully submitted,

Stan Griffin
Regional Vice-President
Southwest Region

5200 Huntington Ave. #300, Richmond, CA 94804-5416 · Phone 510-528-5390 · Fax 510-525-3664

Protecting and Improving Your Fishing Future

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SONOMA COUNTY GROUP

P.O. Box 466, Santa Rosa, CA 95402

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JUL 16 1997

PLANNING DEPARTMENT

CALFED Bay-Delta Program
1416 Ninth St. #1155
Sacramento, Ca. 958145

To Whom It May Concern:

The Sonoma Group of the Sierra Club supports the restoration efforts of the City of Petaluma in the projects: Petaluma Marsh, Petaluma River Greenway, and Adobe Creek. These restoration efforts are important to bringing wildlife back into habitats that had been degraded. Thanks for your consideration of these important efforts.

Sincerely,

David Bannister
Chair, Sonoma Group

To explore, enjoy and protect the earth

I —0 0 3 4 2 0

I-003420

6/97

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

ORDER

ORDER APPROVING CHANGES IN THE PURPOSE AND PLACE OF USE UNDER THE CITY OF PETALUMA'S CLAIMED PRE-1914 APPROPRIATIVE WATER RIGHT AND AMENDING STATEMENT OF WATER DIVERSION AND USE NO. 4680

WHEREAS:

1. The City of Petaluma claims a pre-1914 appropriative right, commencing in 1868, to the surface flow of Adobe Creek in Sonoma County for the purpose of providing a municipal water supply to the City of Petaluma.

2. Statement of Water Diversion and Use No. 4680 was filed by the City of Petaluma with the State Water Resources Control Board on January 1, 1969.

3. A petition to change the purpose and place of use was filed on February 27, 1997 with the State Water Resources Control Board (SWRCB) pursuant to Water Code Section 1707. In its petition, the City requested that waters previously used for municipal purposes be dedicated to instream uses.

4. The City of Petaluma also submitted documentation to substantiate the claim of a pre-1914 appropriative right. However, the documentation failed to substantiate the quantities used by the City during each season since 1868.

5. The claim of a pre-1914 appropriative right is acknowledged for the purposes of this change order without quantifying the right by season. Although the right has not been quantified, in no instance can the maximum entitlement exceed the capacity of the previously existing Lawler Water Treatment Plant which was 1.2 cubic feet per second on a continuous basis.

6. The SWRCB has determined the petition to change the purpose and place of use does not:

   a) constitute the initiation of a new right;
   b) increase the amount of water the petitioner is entitled to use; or,
   c) unreasonably affect or operate to the injury of any other lawful user of water.

I-003421

NOW, THEREFORE, IT IS ORDERED THAT:

1. The purpose of use made under Statement of Water Diversion and Use No. 4680 be amended to: Instream Fish and Wildlife Habitat Enhancement and Recreation.

2. The place of use under Statement of Water Diversion and Use No. 4680 be amended from the City of Petaluma's service area to that reach of the Adobe Creek channel commencing at the City of Petaluma's historic point of diversion located within the SW¼ of SE¼ of Section 12, T5N, R7W, MDB&M, to the confluence of Adobe Creek and Petaluma River located within the NW¼ of NW¼ of Fractional Section 2, T4N, R7W, MDB&M.

3. The Upper Adobe Creek Diversion Dam of the City of Petaluma shall not obstruct the natural surface flows of Adobe Creek.

Dated: JUNE 21 1997

ORIGINAL SIGNED
BY GERALD E. JOHNS

Edward C. Anton, Chief
Division of Water Rights

1997

Fishing program deserves support

DICK MURDOCK

OUTDOORS

THE UNITED ANGLERS from Casa Grande High in Petaluma are in desperate need of corporate or private donors for an altogether worthy cause. A huge student-backed project is currently stalled for lack of funds.

Construction has stalled for a 250-foot fish ladder on Adobe Creek, half a mile from Casa Grande High, that will bypass a barrier blocking access to 5½ miles of upstream spawning habitat. The project has the approval of National Marine Fisheries and Department of Fish and Game.

"Everything is in line," said Tom Furrer, teacher and project advisor. "We're ready to go. We have a federal permit. Also, we have an on-time commitment but are $20,000 short."

This crucial project, Furrer explained, will open the upper watershed to spawning steelhead that has been blocked for 100 years or more. He doesn't want to see the returning steelhead deprived again.

Just two weeks ago, gathered in a hole near the blockade, students excitedly counted 14 native steelhead ranging in size from six to 14 pounds each. They watched and protected them regularly, but returned one morning to find the area strewn with empty beer cans and cigarette butts. The steelhead were gone. Poachers had cleaned them out.

"The fish ladder would have prevented this," Furrer said. "Five hundred tons of rock will be moved to form a safe passageway for spawning steelhead to bypass the barricade. The kids have wanted to tackle this project for years."

Fund-raising is not new for the dedicated students of Casa Grande. Through the years, they've cleaned up Adobe Creek, planted trees, restored steelhead and salmon runs and helped raise money for a modern, state-of-the-art on-campus trout and salmon hatchery. They've pioneered the cause of stream restoration. Many other schools have patterned similar programs after United Anglers of Casa Grande's Adobe Creek projects.

Indeed there is a critical need for corporate and private donors to assist financially with the construction of this all-important fish ladder. It is a project that will endure well into the 21st century and beyond, symbolizing young people's concern about the future.

If interested, contact Tom Furrer at United Anglers of Casa Grande High School, 333 Casa Grande Road, Petaluma, 94954, or call 707-778-4703.

Fish Ladder is now funded for construction in 1997.

→ In 1997, Fish and Game officials collected over 250 steelhead at this location and transplanted them upstream (some as large as 12").

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I-003423

1995

Teens release 60,000 salmon

By MEG McCONAHEY
Staff Writer

TIBURON — There were no cheers, claps or whistles, just a few low murmurs as the final hooks were unclasped and the nets lifted, releasing some 60,000 squirming little salmon into the San Francisco Bay.

More than two dozen Petaluma teens who fanned out on the pier at the National Marine Fisheries Service lab on an overcast Sunday morning were unexpectedly silenced by the emotion of setting free thousands of fish they raised from eggs.

The teens craned their necks and squinted their eyes, many peering through camera viewfinders, for a goodbye glimpse of their fish already headed toward the Golden Gate in the cloudy green waters of the bay.

"This is one of our crowning moments in many, many years of hard work," said Tom Furrer.

For the past 12 years the Casa Grande High teacher has inspired and guided thousands of students in a long-range dream of restoring the fish run to Adobe Creek and four other neglected and dying tributaries of the tidal Petaluma River.

While the club in the past has returned small numbers of fish to their habitat, this was the first large scale release.

All but one of the school's United Anglers Club members, and a number of alumni, showed up to weigh the fish, fortify them with one last meal of high protein pellets, and then set them free in hopes at least some will find their way back to Petaluma to spawn.

"I raised them, hands on

See Salmon, Page B2

Casa Grande junior Janeen Guld nets some Chinook salmon to be released into the San Francisco Bay on Sunday in Tiburon

They're my little babies. So I had to see them off," said Joanna Stiles, a University of California, Davis freshman who last year toted countless hours to make this moment happen. She wasn't about to miss it.

"It's amazing we're really able to do this. It's a real sense of accomplishment," she said.

The teens on their own time scoured Petaluma's dry and degraded creeks, rescuing and retrieving 16 Chinook salmon trapped and doomed to die either at the hands of poachers or in the evaporating pools. Back in their half-million dollar hatchery, the budding fisheries biologists gave nature a nudge, retrieving sperm and fertilizing the eggs, which they pampered until the hatchlings fry emerged.

Some 3,800 yearlings were brought in June to a holding pen owned by the Tree Club of San Francisco, which, like the anglers, is dedicated to reviving dwindling fish populations there. Along with 50,000 slightly bigger salmon cared for by the Tree Club, Casa's babies have been fattening up on a collective 200 pounds of food a day, gaining strength for their maiden voyage into open sea, where they will fan out as far as Mexico or Alaska.

On Sunday, the fish topped the scales at slightly under one-third of a pound. Provided at least a few survive ocean life and the treacherous final trip up the Petaluma River to spawn, they will be a robust 11 pounds.

Wherever they wind up, they'll be easily identifiable. Students injected all their fish with a new dye visible under black light, a laborious project that took more than a week. Casa is the only West Coast hatchery using the new tagging system.

Although Sunday's release closed one chapter, the kids continue their work. Before heading down to Tiburon, several Anglers made an emergency trip to the hatchery to retrieve eggs from a pregnant fish. And Furrer noted that it will take a community wide commitment to clean and revegetate the ailing creeks over the next few years in time to welcome the fish back for their spawn in three years.

1992

TOM STIENSTRA

OUTDOORS

Students bring a stream back to life

MIRACLES can happen after all. It turns out that life can be revived from death.

The donations had just plain stopped coming in for a group of high school students, leaving them bewildered — and $180,000 short — in an ambitious plan to build a campus fish hatchery and rehabilitate a Bay Area stream where steelhead had become extinct. It appeared the dreams of 270 volunteer students over an eight-year span would finally be buried, just like the ghosts of a long-dead fishery.

All they needed was a little miracle, $180,000 worth, and this week, they got it. **Peter** and **Connie Pfendler**, who own a cattle ranch in Sonoma County, strolled onto the campus of Casa Grande High School in Petaluma and wrote a check for the entire amount.

"Everybody is walking around in shock," said **Rodney Jason**, 17, a senior who is working on the project. "It's unbelievable."

To Peter Pfendler, however, it made perfect sense.

"We've been watching them for years and I'm excited about young people taking the initiative to correct environmental problems," he said. "I've seen the dedication. They are a model for others to follow. I have talked to people who did not believe a group of kids could succeed at this. Well, we really want to see this thing work. I want to see steelhead return."

A boost of energy

The donation brings the fund-raising total to more than $500,000, enough to build a state-of-the-art hatchery to produce thousands of steelhead and striped bass each year. It also provides a boost of energy for the students to complete the rehabilitation of a small Sonoma County stream that runs adjacent to Casa Grande High School.

It is called Adobe Creek, a tributary to the Petaluma River that runs to San Pablo Bay. Eight years ago, the stream had been trashed, de-watered, denuded of vegetation, and with the fish extinct, there were plans to put the stream in a pipe and bury it, or to turn it into a concrete canal, just as has been done to small streams in urban areas throughout America. But the students at Casa Grande High, under the direction of adviser **Tom Furrer**, had another vision.

Rodney Jason

Laura Hundt

"The kids saved that creek from a certain death," Furrer said. "Now they are going to bring it all the way back."

The students formed a volunteer chapter of United Anglers of California, then went to work. In the past eight years, they have hauled 75 big truckloads of garbage out of the stream, planted 10,000 seedlings and 5 million redwood seeds for riparian habitat, completed erosion control, and also petitioned the state for increased stream flows. There's more. They built and posted 177 bird boxes to provide alternative nesting sites until the trees grow to maturity, compelled two large developers to complete restoration work of their own, and then started a small hatchery that produced 2,000 steelhead.

This is why the students were selected late this week to the National Freshwater Fishing Hall of Fame, the first time a student club has ever been honored in the country.

Doesn't come easy

The irony is that none of this is coming easy. One time, a county worker bulldozed 200 trees that had been planted just the year before. Last summer, someone stole an entire grove of redwood trees that had been raised to 6 feet from seedlings. In 1988, there was a toxic spill on the lower river that was named as a Superfund cleanup site. Four-wheel drive cowboys like to drive their big rigs right down the stream, plowing the river. Locals keep dumping garbage in the stream, day after day.

"We can go down there one day and pick up everything, then go down the next day and there's more stuff," said **Laura Hundt**, 15, a sophomore.

"Lately, we've been finding a lot of car parts, wires, seats and engine parts. Some people back their trucks up and unload their garbage right in the stream," said Jason.

"We've pulled out diapers, couches, vacuum cleaners, car parts, you name it. Another problem is that people put stuff in the gutters and sewer drains along the streets and think it's going to disappear. Well, it doesn't. It runs right into the creek."

The biggest setback was when the campus hatchery was closed down because the building did not meet earthquake standards. This came after 2,000 steelhead hatchlings had been raised and planted in the river — fish that will swim to sea, then return as adults to spawn.

"So with the hatchery closed down, what do they do?" Furrer said. "They decide to build a big, modern hatchery. The fact it would cost a half million dollars didn't even faze them. Some people said it would be impossible, but they are doing the impossible."

Construction renewed in spring

With the miracle $180,000 provided this week, they have that half million, and the construction work will be renewed in early spring.

"I have had a great deal of satisfaction trying to bring this stream back, more than I can put into words," Jason said. "I know now that people can make a difference in our environment, and with determination you can succeed, no matter how large the task."

Earlier this past week, when other students were off enjoying a holiday, Hundt and **Israel Bruner**, 17, ventured to the creek's headwaters. They planted 50 seedling-sized Giant Sequoias along with thousands of redwood seeds.

"It was a great feeling to put these little seedlings in the ground," Hundt said. "Hopefully they will grow nice and tall, make shade for the fish, and bring back the natural ecosystem.

"I've never really been involved in anything before, but when I started working on this I got the feeling I was doing something right, and it was good to be surrounded by people who had the same values and beliefs," she said. "There is a great feeling of friendship and family within the group. We can go down there and pick up garbage, and as long as we're together, it's fun.

"We are getting a great deal of pleasure bringing life back to our stream."

For information about the Adobe Creek Restoration Project, write Tom Furrer, Casa Grande High School, 333 Casa Grande Road, Petaluma, CA 94954.